School Shop

vol. XIII no. 7
MARCH 1954

Realism in Industrial Arts
by Donald B. McKay

Model Yacht Regatta
by William B. Steinberg

Modern Coffee Table
by Bernard G. Barisas

Necktie Rack
by Ira H. Johnston

Cover story: San Diego, California, junior-high students eagerly watch while their power boats are being judged during the model yacht regatta. See page 10 for story.

THE MAGAZINE FOR TEACHERS OF INDUSTRIAL EDUCATION

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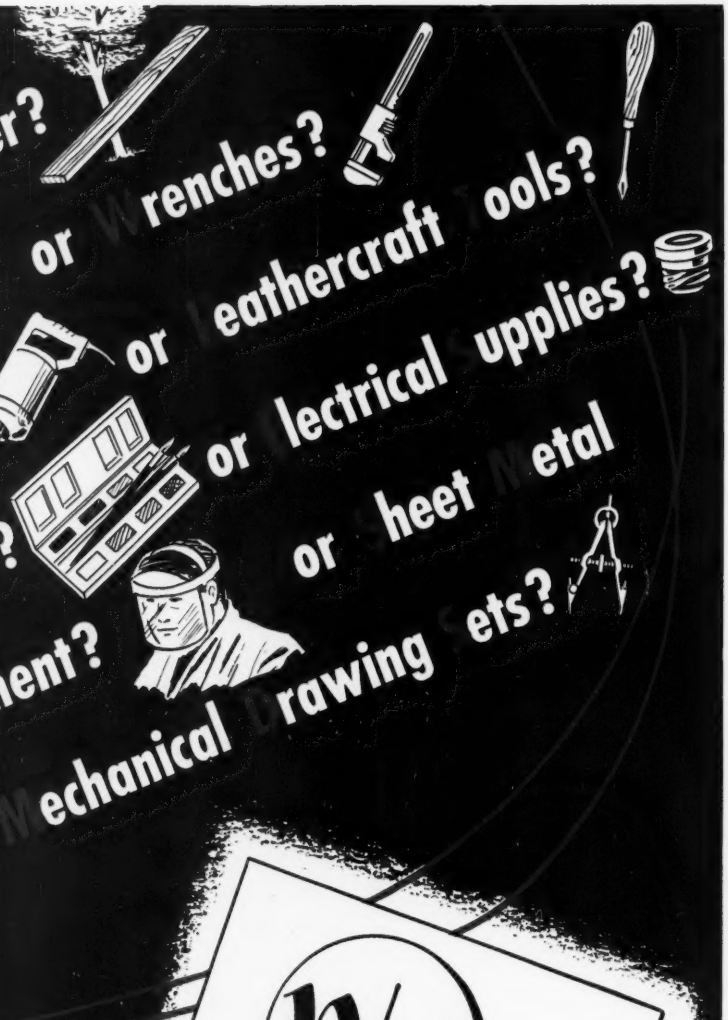

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School Shop TALK

COMMENTS ON ISSUES FACING INDUSTRIAL EDUCATION

Education Is a Cooperative Responsibility
(A Guest Editorial)

Probably one of the most acceptable definitions of education is "preparation for a useful life." There are certain basic experiences such as reading, writing, arithmetic, social adjustment, good citizenship, and knowledge of government which are basic to all kinds of occupations if the individual hopes to reach a high degree of success.

It is most important to the student and the school that every effort be made, starting early in the grades, to study and examine the interests, aptitudes, and abilities of our young people, using the best techniques known, to find what they are best fitted to do when they leave school.

Wasted human resources cost this country large sums of money each year through inefficient workers, slowed production, and failure in many cases. The schools should accept their share of responsibility for this situation. Good performance in employment is the result of mental attitudes brought about by confidence in one's self, desire for further learning, and a feeling of security which can come only from having the right people in the right job, whether in skilled, semiskilled, or nonskilled areas. Modern industry is becoming more aware of this fact every day. Consequently, they are spending large sums of money through personnel organization and training facilities to establish better adjusted and more efficient employees.

Vocational and technical schools, whether they be public or private, are known and respected by employers on the basis of the kind of person they train. Consequently, it is most important to the school, and the student as well, that proper selection of trainees be made because high standards of attainment are possible only when we are able to select people with inherent ability and interest for the jobs they are being prepared to do.

The modern school today is much better fitted than it was a few years back to carry its share of responsibility in directing young people in the right direction for greatest achievement in later life.

Trained counselors working with school administrators are able to provide more reliable information for the cumulative record which should extend from kindergarten through the twelfth grade. This information should be shared with personnel people on a confidential basis. The cumulative file should include a health record, personal characteristics, family background, attendance and tardy record, as well as grades. Reliable studies indicate that the pattern of behavior during school life will be repeated when the individual enters employment.

The above statements would indicate that there is a mutual benefit to the school and the employer when they work cooperatively.

As the employers report back to the schools the strengths and weaknesses of their graduates, the schools will be able to adjust programs of training which will grow stronger as time goes by. The schools will also be able to keep in line with changing needs and conditions.—*Ross C. Cramlet, Coordinator, Des Moines, Iowa, Technical School.*

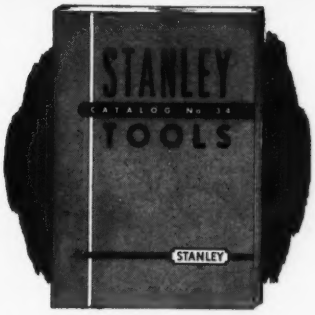
Here Is the Evidence!

Tangible evidence of the value of having professional help available in the industrial-arts area from a state department of education is shown in Illinois. During the last six years, following the appointment of state supervisors for industrial arts, 137 new programs have been added in high schools which did not formerly offer industrial-arts work.

Some of these programs might have been established anyhow, but all of them were aided by trained professional people in the industrial-arts field and no doubt many of the programs would not have been established if the help had been insufficient or lacking.

Only a handful of states have full-time men giving the type of service which Illinois offers. Continuing effort should be made in those states without it to provide this highly useful service which is particularly useful to the smaller communities.—*L.W.P.*

STANLEY SHOP TALK



CATALOG No. 34

This STANLEY TOOL CATALOG with the special school index is a particularly useful book of reference and tool information for the shop teacher.

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Use the coupon to send for your free copy of the STANLEY TOOL CATALOG with special school index. We will include a 9-page list entitled *Suggested Specifications for Equipping A General Shop.*

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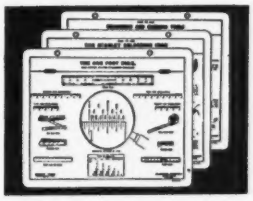

Shop teachers find these STANLEY instruction charts real time-savers. They concentrate on show-how to build student know-how. Wordy description is cut to a minimum.

Each chart is printed on both sides of heavy, lacquered, extra large, 25″ x 19″ cardboard. There are 38 in the set, covering all the woodworking tools and seven of the more commonly used metal working tools. Complete set $6.00. Delivered anywhere in the U. S. A. Use coupon.

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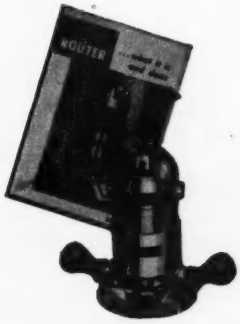

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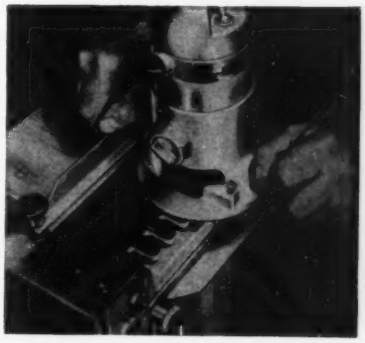

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ATF *Good School News*

GRAPHIC ARTS—THE EDUCATIONAL FIELD WITH A FUTURE

American Type Founders, Educational Services Department, 200 Elmora Avenue, Elizabeth, New Jersey

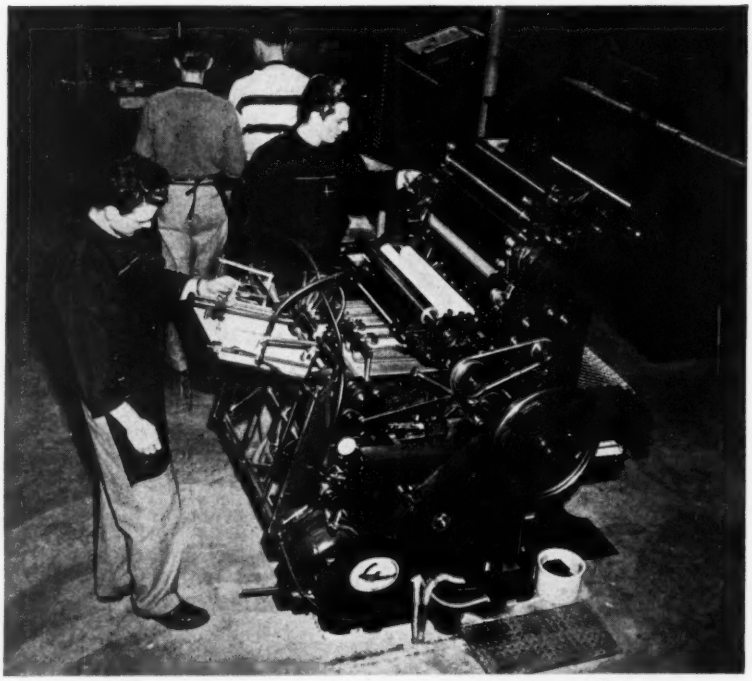
Vancouver Has Complete Graphic Arts Program

A complete graphic arts course is now being offered in Vancouver, Wash., by Clark Junior College, Vancouver and Washington high schools—all operated by School District 37.

More than a thousand students, ranging from 10th grade high school sophomores to trade extension and trade training men are given thorough practical training in both letterpress and offset printing.

The well-equipped shop occupies two floors of Clark College's new million dollar building for vocational and applied arts. The new 17 x 22 ATF Chief, shown to the right, was selected for training students in the offset process. A 14" ATF darkroom camera and a No. 4 Little Giant are also in operation. Other ATF distributed equipment includes a Challenge drill, Diamond paper cutter and a Morrison saw and router unit.

The aims of the graphic arts division, according to Dean Oliver B. Klossner, are "...to give the students a complete view of graphic arts theory through job work, classroom instruction, movies, plant visits and lectures...".



ATF 17x22 Chief at Clark College Graphic Arts Division trains students in offset printing.

ATF 14" darkroom camera gives Vancouver printing students actual experience in making plates for offset work.

ATF Helps Solve School Problems

ATF maintains a Specialized Department of Education to assist vocational schools in laying out a graphic arts shop, outlining training courses and finding competent instructors. ATF also serves as a source of supply for all printing equipment. Write for your copy of ATF's booklet, "Career Opportunities in the Printing Industry".

Alabama School of Trades at Gadsden installs new ATF Little Giant Press

The popularity of ATF Little Giant presses for graphic arts instruction is rapidly increasing. With the installation at Gadsden they are now being used in schools of thirty four states.

Because it operates on the same principle as the Kelly and other larger presses, the Little Giant is a particularly valuable training tool. It not only introduces students to the whole field of letterpress printing, but the Little Giant itself is finding ever increasing use in the graphic arts industry. Its centralized controls facilitate both operation and instruction. Also, being completely guarded and easily braked for immediate stops, the Little Giant 6 is easily the safest press on the market today. A Micro-Safety switch prevents operation when the press' side guard panels are removed.

This ATF Little Giant is now being used in the graphic arts vocational course of the Alabama School of Trades at Gadsden, Alabama. An ATF Big Chief offset press is also in use here.

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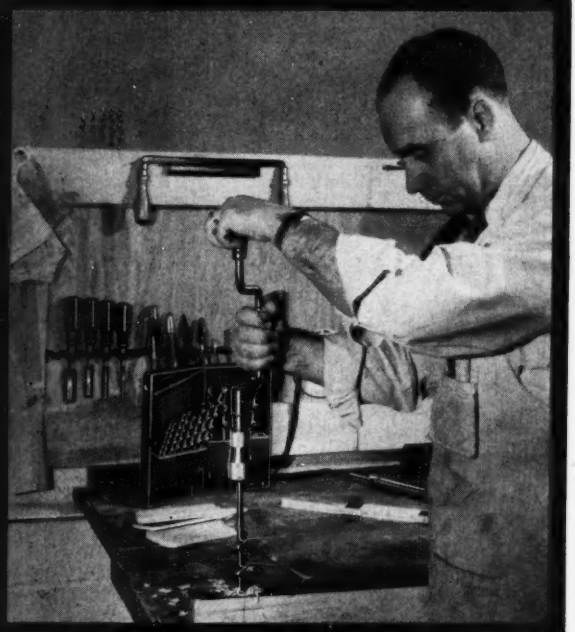

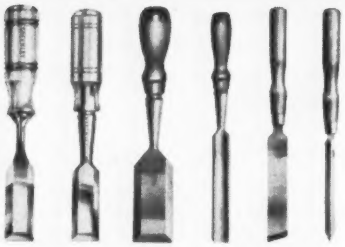

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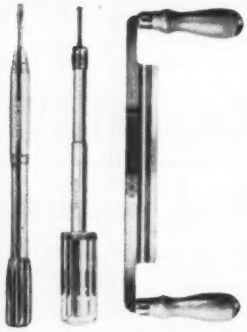

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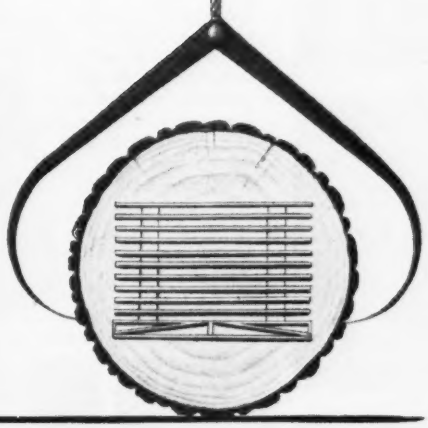

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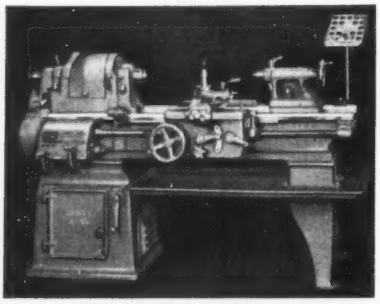
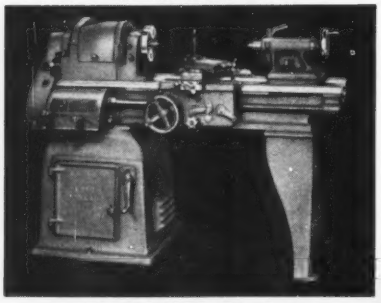


16" Toolroom Lathe



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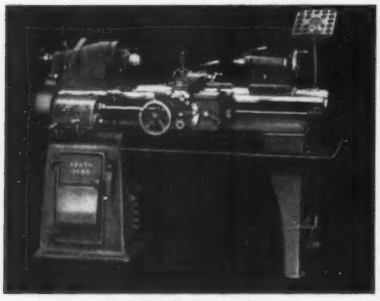

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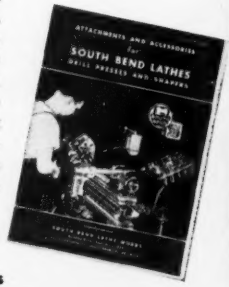

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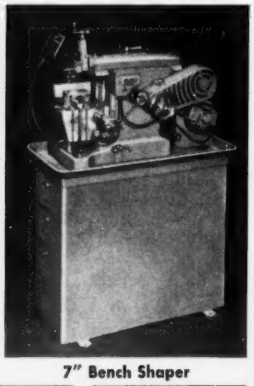
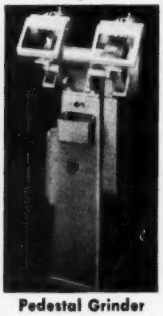


7" Bench Shaper



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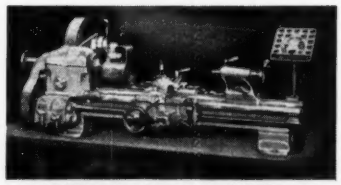
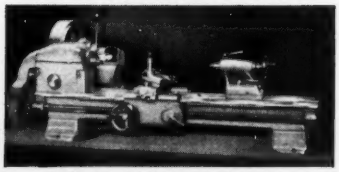
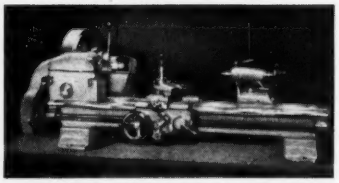


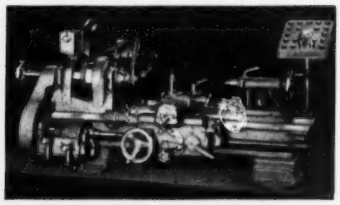
Light Ten Toolroom Bench Lathe



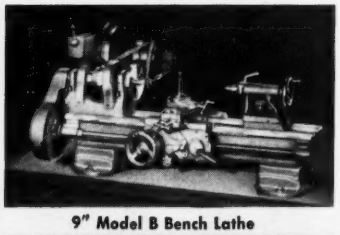
Light Ten Model B Bench Lathe



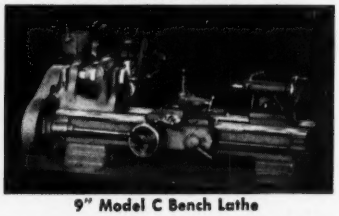
Light Ten Model C Bench Lathe



9" Toolroom Bench Lathe



9" Model B Bench Lathe



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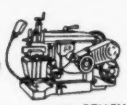

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Philosophy from the firing line

Realism in Industrial Arts

By Donald B. McKay

Head, Industrial Arts Department, Polytechnic High School, Long Beach, California

NO common mortals are we! Our lives are dedicated to the purpose of inspiring boys and girls to become fine men and women. We are the "moulders of youth," "the hope of civilization!"

It was with this ideal that you first entered the teaching profession. Certainly, with sustained enthusiasm you still carry the torch, with the added wisdom of a veteran. Now, after years of service as an educator, you have learned that teaching is a highly skilled vocation and that in mass education the business of *inspiring boys and girls* involves a great deal of realism. From the perspective reached through your years of experience, let us pragmatically examine this business of *moulding youth* in an industrial-arts program.

The Three Musts

Nonteaching educational philosophers write many books and articles each year on the theory and practice of teaching—all intended to guide or influence the thinking of those who carry the actual load of instructing students in a classroom situation. Quite often the teaching experience of these theorists is superficial or very limited, and all too frequently they have had little first-hand practice with the problems of the secondary-school teacher. What simple criterions may the industrial-arts teacher employ for evaluating his own teaching? The writer believes that if the teacher is to be a happy individual in his work the following conditions must obtain: He must:

I. Satisfy His Immediate Administrators: Keep his students out of the vice-principal's office and handle most of his own discipline problems.

II. Maintain a Spirit of Industry in the Shop: Keep the students educationally busy. Every loafer is an indictment against the program.

III. Sell His Program and Himself: The students must like the teacher and want to be in his classes. They must be attracted by the work done in the shop and by the personality of the teacher.

Could the teacher meet these conditions if the subject matter were not worthwhile and suitable for the intelligence level of his students? No matter what material he may use, or attempt to use, if he cannot satisfy these conditions he is not doing a good job; conversely, if these conditions are attained, he is doing a good piece of work; and he need not be concerned about the opinion of those who do not carry the brunt of duty.

Educational Values

Initially, shop work in the schools started as a manipulative activity, progressing from sloyd to manual training to our present all-inclusive industrial arts. The major difference between these activities is in the inclusiveness of the objectives; latest trends shift from manipulative processes toward social adjustment. As the pendulum of educational philosophy swings, we now find the emphasis on that special education which we at the present time call *general education.*

Educators now speak of "general educational values," "the art of living," "the humanities," "integration with the core curriculum," "more democracy in education," "education of the whole child," and many other aims and objectives, all of which the industrial-arts teacher frequently finds difficult to translate into a practical shop activity. Frequently our critics accuse us of being without vision, too materialistic, and totally oblivious to the social changes taking place in our way of life. Some would have the teacher place most of the emphasis of his teaching on the social adjustment of pupils, with a sharp deemphasis on the manipulation of tools and materials. Some of the theorists, it would seem, are more concerned with indoctrinating pupils with the idea that a change in our socio-economic order is needed than with the teaching of industrial arts.

Project Emphasis

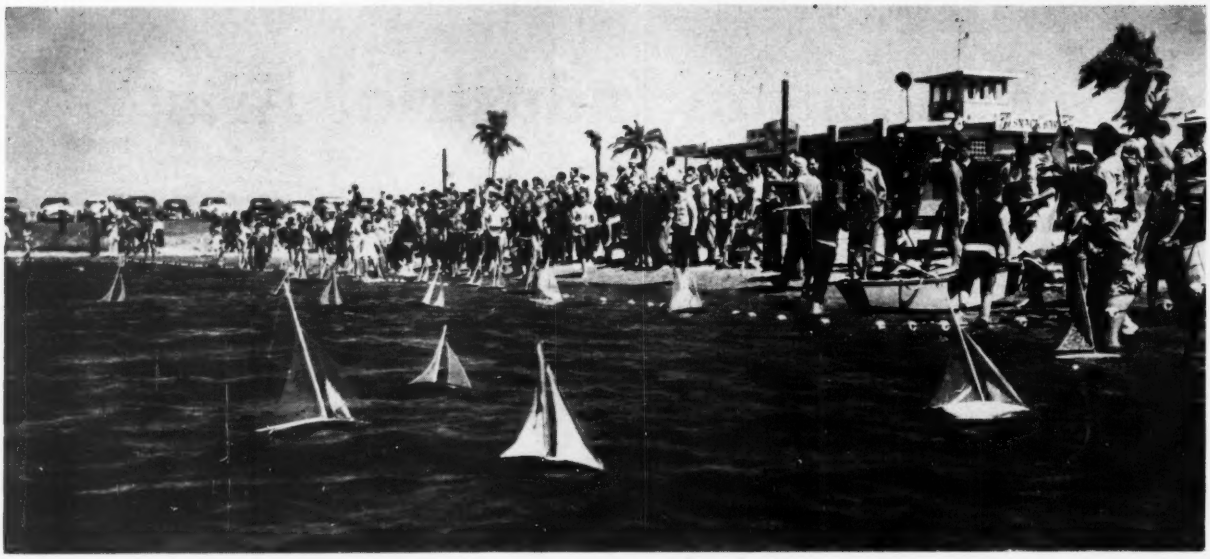
Some shop teachers require all their students to make a prescribed first project at the beginning of the semester in order to establish quickly a controlled situation by providing a definite assignment for all pupils, including those elusive few who would rather loaf than work. The theorists condemn this plan severely, for they have minimized the importance of projects in an industrial-arts program.

During recent years the trend has been to increase the size of industrial-arts classes; concurrently, educational philosophers have *intensively encouraged* teachers to permit more differentiation of the projects constructed. Presumably, this in turn would enable the individual pupil to explore larger areas of interests. It has been assumed that this could be accomplished by the development of techniques in teaching for pupil selfdirection, but all too often it has called for more individual assistance on the part of the instructor.

The ultimate in motivation would be a plan whereby each pupil pursues his own interests. If Johnny wishes to build a hot-rod, let him do so. If Peter is interested in jet planes, encourage him to build one. Some of the theorists apparently believe that shop experience and knowledge of fundamental tool processes is relatively unimportant.

What could be more inspiring than a class in which every pupil is constructing something entirely different from all of the others or perhaps individually exploring some area of industrial arts? A well organized program of this type, even when ably controlled by a strong, capable teacher, will produce a highly stimulating atmosphere. Does the teacher have the emotional make-up to permit him to endure a situation of this kind on a long-term basis? If not, he must control the spread of work and the election of projects in order to use some group or class instruction. It is obvious that the larger the class and the greater the pupil contact, the more controlled must be the spread of pupil interests. As the writer sees this problem the following factors will determine the procedure which can be successfully used:

1. Mental capacity of the students.
2. Size of the classes.
3. Graded or mixed grouping (by experience). (*Continued on page* 28)



Heeling over in the breeze, the model yachts made by San Diego junior-high-school students in their shop classes compete for prizes in one of the heats of the annual regatta which attracts more entries than any other regatta of its kind in the entire United States.

Junior-high shop students really go for the San Diego

Model Yacht Regatta

By William B. Steinberg

Supervisor of Industrial Arts, San Diego, California

Judges pick the winner at the finish line. Students in both woodworking and metalworking classes may make boats to enter in the competition in three classes, 18", 24", and 30".

INAUGURATED thirty-two years ago, San Diego's Annual Model Yacht Regatta is the largest event for boys of its kind held anywhere in the nation. The twenty-sixth regatta was run on June 13, 1953. Since its inception, more than 12,000 young junior-high-school boys in the city of San Diego have constructed model boats.

The regatta was temporarily shelved in 1941 at the start of World War II because of scarcity of materials and the security restrictions that were placed on the use of the Bay waters. The regatta was revived again in 1946 through the cooperation of the industrial-arts teachers, the *San Diego Union* paper, and local yachtsmen.

This event is sponsored by the *San Diego Union* newspaper and is held in the Model Yacht Pool in Mission Bay. The pool was specially constructed for model yacht racing and is considered to be one of the finest in the United States for model yachting.

Students in woodworking and metalworking classes in all of the junior-high schools may construct model yachts for the regatta which is usually held in June on the Saturday before the close of school. An all-time high of 1100 entries has been reached.

The racing program is an all-day affair with the boys entering racing models which have been constructed in industrial-arts classes. The boats are divided into three classes—18", 24", and 30"—and separate races are held for each class for both metal and wood boats. Also included is a power-boat

class for electric-powered boats and rubber-band power craft.

The entire show is open to the public. Friends and interested spectators line the shores to watch the competition. At noon, hot dogs and ice cream are furnished to all contestants by the sponsor.

Prizes are awarded to contestants for both construction and sailing. Handsome trophies are presented to boys whose boats place first, second, and third in any of the final races for each class, and similar trophies are awarded to the first three places for craftsmanship. Every boy who places in a heat or semifinal race receives an embossed certificate.

The grand prize is the Ten Steinmann Perpetual Memorial Trophy given in honor of the late sports editor of the *Union* who organized the historic regatta in 1923. This spectacular event brings together the best built 18″ wood boat and the best built 18″ metal boat from each of the schools. This year another special trophy was added to the 24″ class in honor of George Kettenburg, local yacht builder, who, before his death, was one of the community leaders in promoting this event.

In the case of electric-power craft, motors must be built entirely in the school shop as it was decided by shop teachers and regatta officials that permitting the use of manufactured types did not permit equality among the contestants. From past experience it was decided that some limitations would be necessary on the use of power in order that all boats would be on an equal basis. At one time several boys tried jet-propulsion motors, but because of the danger of serious injuries to contestants this type of power has been prohibited.

The regatta produces considerable interest in both metal and wood shops of the junior-high schools. Separate races for boats constructed in wood and those of metal provide opportunities for boys to compete with others working with the same materials. A special "free-for-all" race at the end of the day is held for yachts of either wood or metal of the same class. The competition between wood and metal boats is very close, as over the years both wood and metal boats have won an equal number of races.

The wood boats may be constructed from a solid piece of wood, but the built-up method is the most popular type of construction. The wood used is ¾″ soft pine. The inside is cut out on the jig saw at about a 7° angle and the center pieces can be used where the hull is smaller. This method speeds up the construction of the boat by eliminating considerable inside gouging and outside planing.

Winners show the product of their skill while also-rans admire the boats. Trophies in the background will be awarded at school assemblies later. Local yachtsmen help run the regatta.

The metal boat is usually made of tin plate or light galvanized iron. The majority of the 18″ metal boats are constructed with the metal from one-gallon tin cans.

Schools having a large number of entries have no advantage over the smaller schools because of the regatta racing rules. All entries of a particular type of boat from one school race to determine the three finalists from that particular institution. The 18″ class is limited to beginning industrial-arts students in the seventh and eighth grades.

To add interest to the event and to assist the boys in obtaining sailing information, members of the San Diego Yacht Club visit the various school shops at the request of the shop teachers. Miss Paula Kent, Promotion Director of the *San Diego Union*, contributes much to the success of the regatta through her careful arrangements and organization of all of the events. The San Diego Park and Recreation Department also assists on the day of the race.

From model yachts to the real thing is the ambition of every boy with a love for the sea. Whether the goal is a 250′ course for a model yacht or a 3000-mile International Race to Honolulu for the yachtsmen, the principle remains the same—the challenge of competition, the spirit of good sportsmanship, and the thrill of sailing the sea. ★

Prizes are awarded both for racing and for boat construction. Here the judges are carefully going over the model boats which can be made of either metal or wood. Both types have won.

Ford Motor Co. Photo

Your better students will be challenged by this

Modern Coffee Table

By Bernard G. Barisas

Southeast High School.
Kansas City, Missouri

Magazines fit in the lower shelf of this prize-winning table.

HERE is a functional coffee table that offers many and varied possibilities as a project for meeting course objectives. The operations involved in its construction provide worthwhile opportunities for the student in working with angles, making full-size layout patterns, using a template, shaping by hand, performing a wide range of machine work, and finishing. The attractiveness of such a project should stimulate both group and individual interest.

The interest of this design lies in its simplicity and flexibility; it is suited to a variety of woods and finishes, and within these limits allows for some individual adaptation.

A table of bleached mahogany, built by Don Bateman, won a Special Recognition Award in the Ford Industrial Arts Awards contest.

Details of Construction

While construction may begin at almost any point, it is practicable to start with the ends, followed by the rails, and then the legs. If this procedure is to be followed, the following breakdown of construction may be of value:

Ends.—Use 5/4" stock for the ends. Make full-size patterns of the upper and lower parts of the ends; this will save time and material in laying out on stock. Lay out dowel holes on the upper ends; after boring holes, use dowel buttons to locate dowel holes in the lower part of the ends. Glue temporary blocks to the lower part of the ends (see Figure 1) to form a parallel surface with the top as an aid in clamping the upper and lower parts together when gluing. Be sure to mark right and left inside of the ends before laying out dowel holes for attaching the rails and laying out grooves for plywood. Use a Foerstner bit to bore dowel holes for attaching the rails to the ends.

Rails.—Make full-size templates of front, back, and lower rails out of sheet-metal or heavy cardboard. Use the circular saw to rough-cut to layout lines. Finish-cut to layout lines, checking at regular intervals with the templates (see Figure 2). Grooves for the glass top can be cut with the circular saw or shaper, preferably the shaper. Locate dowel holes at ends of the rails, using dowel buttons.

Legs.—Make a full-size pattern of the leg parts. Use a Foerstner bit to bore holes in the leg ends.

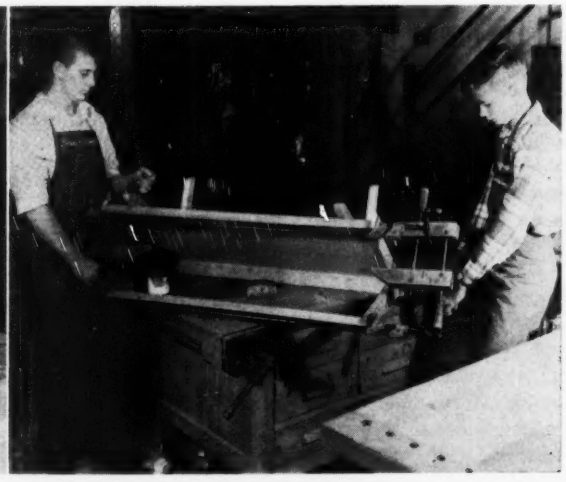
Assembly.—After a trial assembly of ends, rails, and plywood, the table can be glued (see Figure 3). To insure a good fit of the glass, be certain to set the glued-up assembly topside down on some *flat surface* to keep the top flat. Glue leg assembly and fasten to the top assembly by two screws through the legs and into the lower rail. (See detail on drawing.) Use glue blocks to help glue the leg assembly to the top assembly.

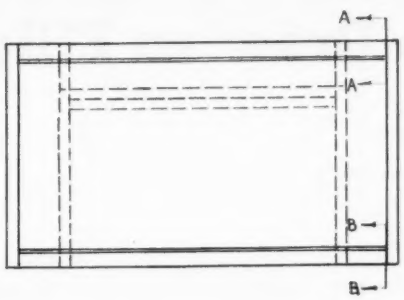
Finish.—Selection of the finish will depend on the wood being used, the furniture with which the table is intended to harmonize, and shop facilities. ★

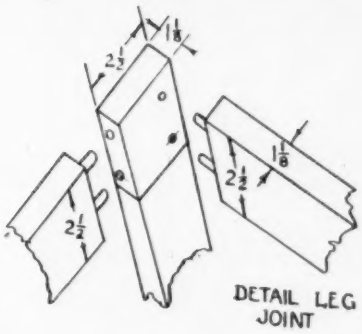
Figure 1—Temporary blocks are glued to the ends so they may be clamped without slipping.

Figure 2—Templates are used to check the rails.

Figure 3—Gluing up the table after final checking of the assembly for proper fit.







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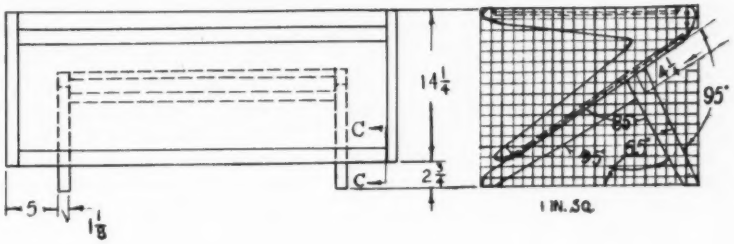
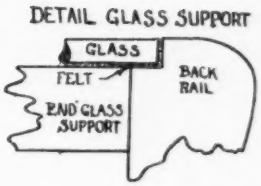
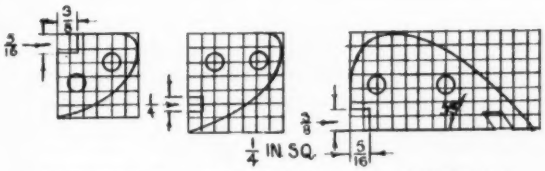
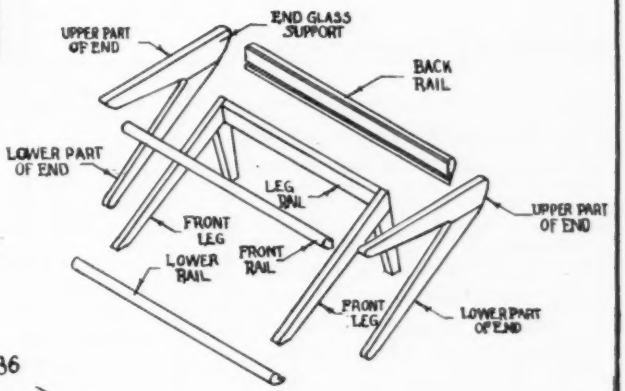


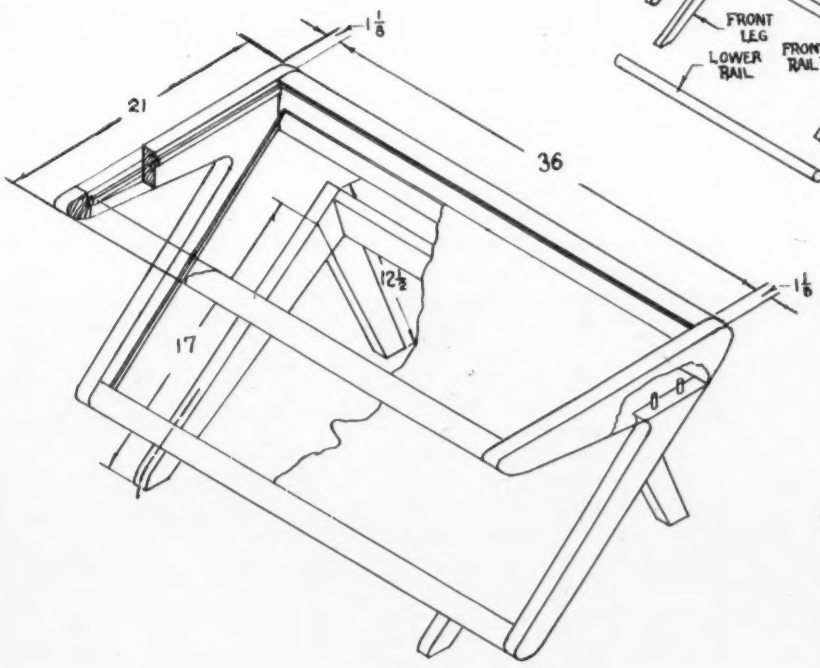


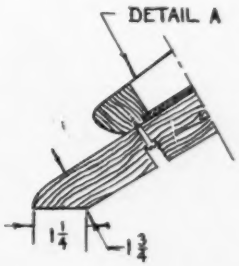
DETAIL GLASS SUPPORT



SECTION B-B SECTION C-C SECTION A-A







How to Use the 2-Foot Ruler to Draw an Ellipse

By Benjamin L. Kaufman

James Monroe High School, New York City, N. Y.

TEACHERS of drafting, sheetmetal work, shop mathematics, and other shop subjects will find this presentation a fascinating problem which will give their students a better understanding of the basic geometrical concepts involved.

First are presented the step-by-step operations necessary to draw the ellipse. Following this is the outline of the geometrical principles on which the process is based.

Step 1.—(Figure 1) With the major axis of the ellipse as a diameter, draw a circle with two diameters perpendicular to each other.

Step 2.—See sketch *A*. Set two sections of the 2′ ruler at right angles to each other. (This can be done by placing an edge of the horizontal section along the major axis and the corresponding edge of the vertical section along the minor axis.) Arrange a T-square or any other straight edge so that the 3″ mark on the ruler will intersect the major axis at all points as it is being slid along the T-square.

Step 3.—(Figure 2) Set the ruler as shown in sketch *A* and mark off one end of the minor axis on the vertical diameter. Note the mark on the ruler. Slide the ruler along the T-square to the right until this mark on the ruler intersects the circle. Mark this point on the circle with a letter (*E*). Mark the other end of the minor axis.

Step 4.—(Figure 3) Slide the ruler along the T-square to obtain positions for drawing chords of varying lengths. For each chord, note the mark on the ruler where it intersects the circle. Write this number next to each chord. One number will be above the major axis and the other below it.

Step 5.—Set the ruler as shown in sketch *B*. (This can be done by holding the horizontal section flat against the T-square and allowing it to slide while the vertical section is turned so that its edge goes through the center of the circle

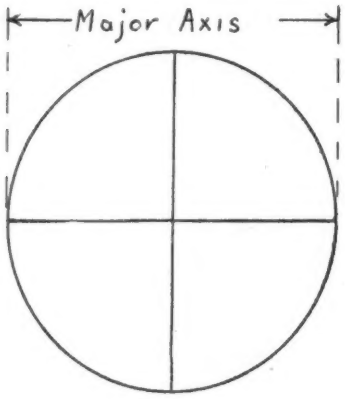


Figure 1.

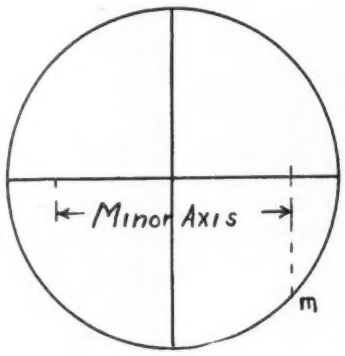
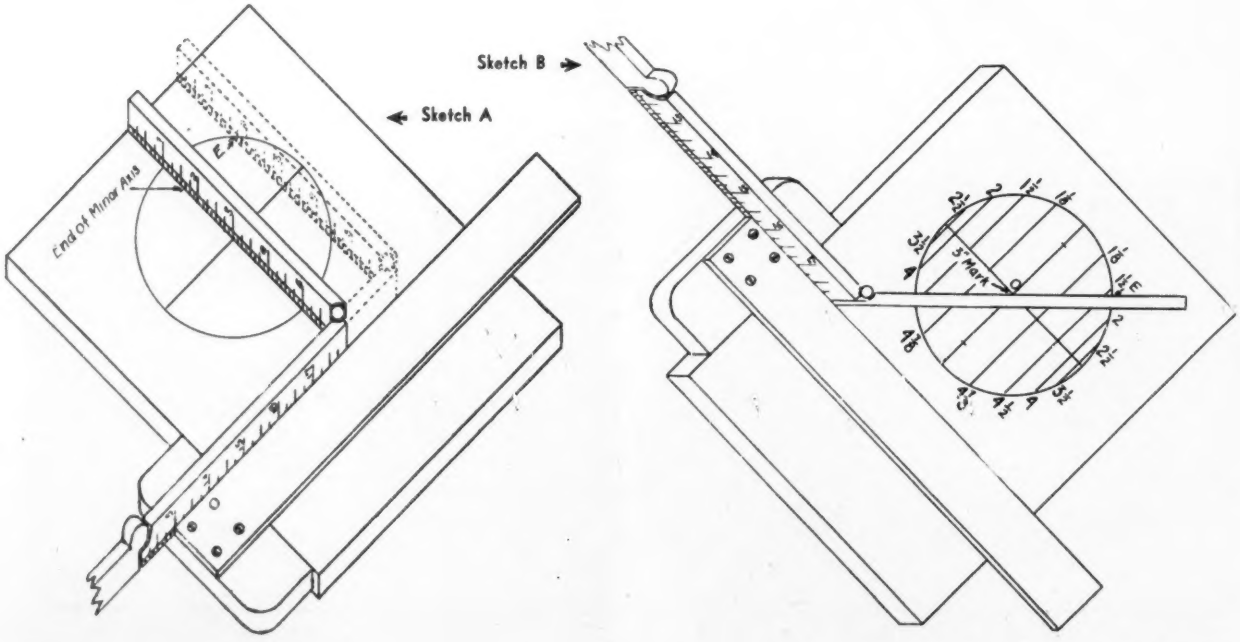


Figure 2.



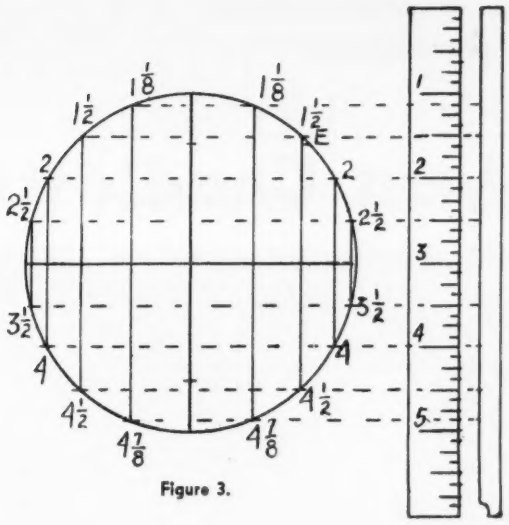


Figure 3.

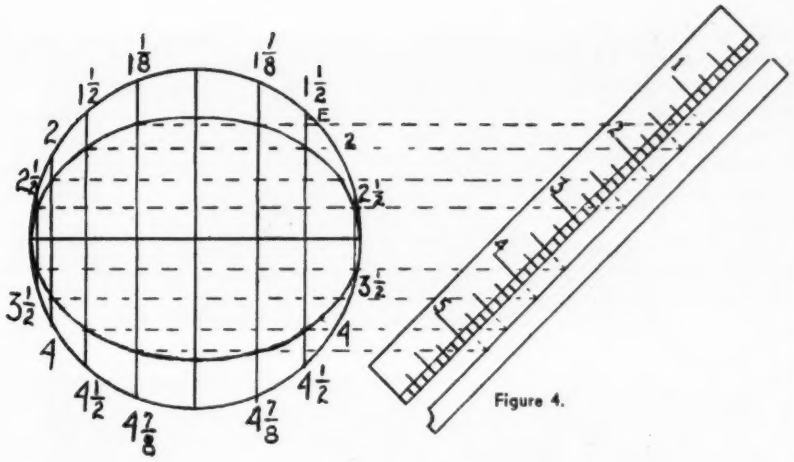


Figure 4.

and the point *E* found in Step 3. This angle must be kept constant. If the hinge of the ruler is loose, a strip of Scotch tape can be used to tie the sections together.

Step 6.—(Figure 4) Make sure that the 3″ mark on the ruler again intersects the major axis at all points as the ruler is slid along the T-square. Slide the ruler along until each chord is intersected by the same mark on the ruler as the number written next to each chord. Draw the ellipse through these points.

For larger ellipses, use the entire ruler and proceed as above. In this case the ruler will be resting on its wide face. A small piece of paper bent at right angles can be used to prevent parallax.

The following discussion explains the geometrical principle on which this method is based.

In Figure 5, let *AB*, the diameter of circle *O*, be the major axis of the ellipse and *CD* be its minor axis. Through *C*, a line drawn parallel to *AB* cuts the circle at *E*. *EOF* is a diameter.

Four points on the ellipse can be found as follows. Draw any two equal chords *GHI* and *JKL* perpendicular to *AB*. On *FOE* lay off *OM* and *ON* equal to *GH*. Through *M* and *N* draw lines parallel to *AB*. *P*, *Q*, *R*, and *S*, where these lines cut the chords *GHI* and *JKL*, are four points on the ellipse.

In like manner any number of points can be found. ★

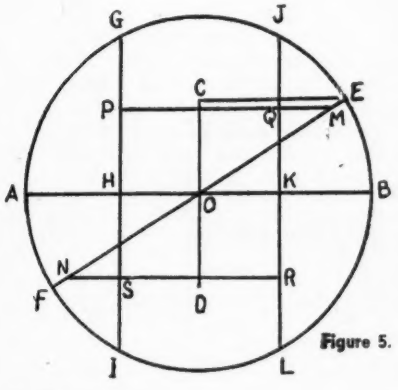
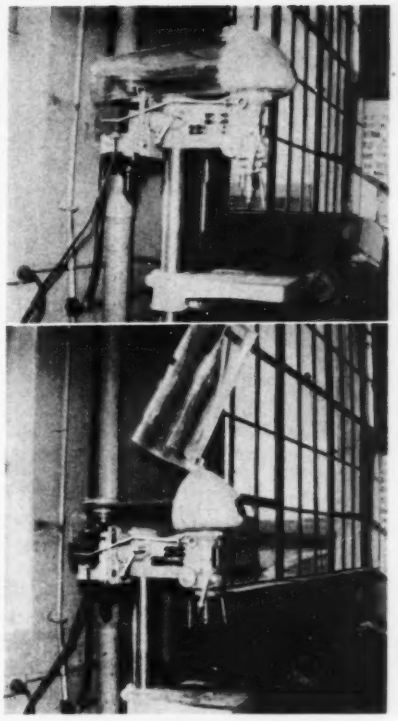


Figure 5.



This plastic guard shows drive-belt location.

Transparent Protection

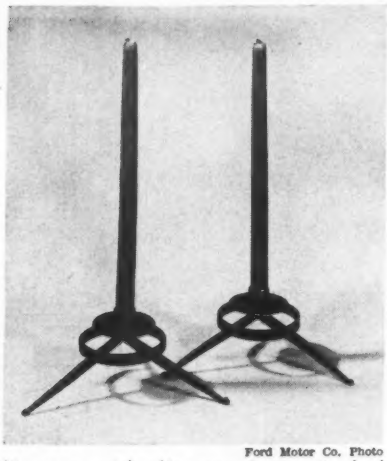
By Lester R. Marshall
California High School, Whittier, Calif.

OFTENTIMES it is convenient to see the drill-press drive-belt location and consequent spindle speed from various spots around the shop. The instructor can tell whether the student is using the right speed for his job without running over to the drill press to check.

It was not difficult to construct an acrylic plastic guard to replace the convention cast-iron guard. A jig was made, over which was formed the 3/16″ plastic after it was heated in an ordinary gas oven.

Hinging of the guard may be done by various methods. The type used here is similar to that on most drill presses equipped with cast-iron guards. However, a reinforcing block was formed and cemented by conventional methods to the guard for added strength at the hinge point.

The protective device has proved quite satisfactory from the standpoints of safety, visibility, lightness, and strength. The guard may be cleaned by using a damp, soft cloth. ★



Ford Motor Co. Photo

Numerous metalworking operations are involved in fabricating these very lovely candlesticks.

Good design characterizes these prize-winning wrought-iron

Modern Candlesticks

By William R. Hahn

Mark Twain Junior High School, Venice, California

STUDENT interest in the modern trend toward furniture and accessories of wrought iron resulted in these modern three-legged candlesticks which won a first prize for their maker, Don Czubiak, an eighth-grade student.

The simple candle cup and drip saucer are supported by three tapered wrought-iron legs, the ends of which are curled over to prevent marking the furniture. A decorative ring encircles the legs below the drip saucer.

This project serves to introduce to the student a number of operations in working with iron such as drawing out iron and forming a foot, making a ring in the forming rolls, shaping the cup over a stake, and shaping the saucer over a wood form.

Advanced junior-high students can true the saucer circles on the lathe, lay out their own pattern for the cup, and do all of the welding with the help of a jig.

The material used is 16-gage or 18-gage black iron and $\frac{1}{8}$" x $\frac{1}{2}$" hot rolled band iron.

The first step is to cut the material for the legs and forge them to a long taper, drawing the tip out to 1/16" in thickness. This tip is then curled over to make a foot. After cutting to the exact length of $4\frac{3}{4}$", the legs are welded, with a jig used for positioning them. The jig is fashioned from wood with a $8\frac{7}{8}$" d circle drawn on it. This circle is divided into three equal parts and a small hole drilled at each point for the legs to sit in. A nail in the center of the circle, $1\frac{3}{4}$" high, is needed to support the legs. Wet the board to prevent charring.

Form the ring, using the sliproll forming machine, and then weld the joint. Smooth the joint by grinding and filing.

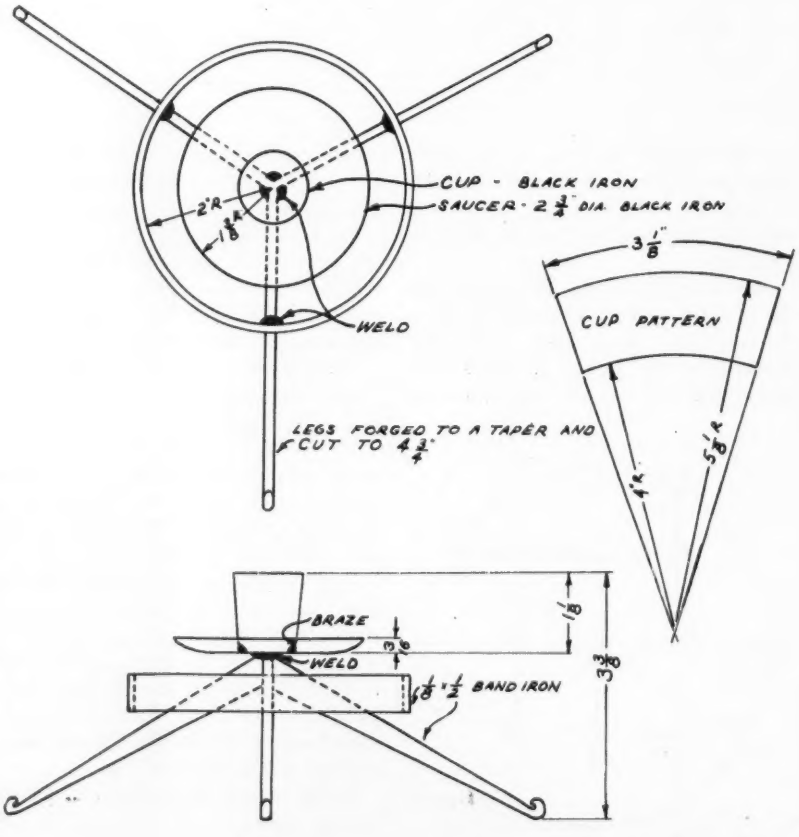
A $2\frac{3}{4}$" d circle is cut from the black iron, filed smooth, and then formed into a saucer shape, using a raising hammer and wooden form.

If desired, the circles may be trued on the lathe for a more perfect job and to provide a lathe operation before the shaping.

The candle cup can be made from a template supplied by the instructor or the student may lay out and make his own pattern. After cutting and filing, the cup is shaped over a stake and the joint welded and filed smooth.

The pieces are now ready for assembly. Weld the legs to the inside of the ring, making sure that it is level. Then weld the saucer to the legs and finish by brazing the cup to the saucer.

Remove the loose scale from the candlesticks and finish with a coat or two of flat black paint. ★



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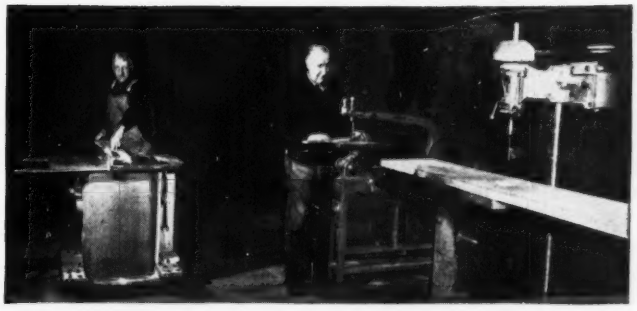
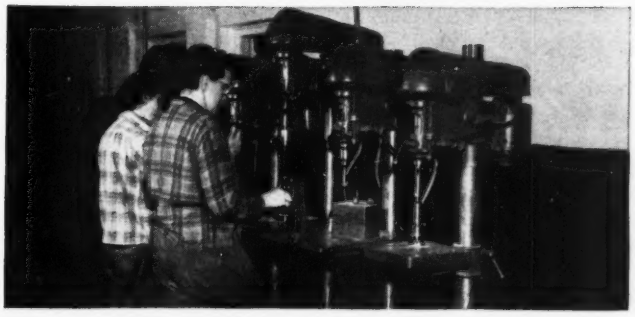
Copeland Refrigeration Corp., Sidney, Ohio, uses 22 DELTA Drill Presses in the manufacture of refrigerator components. Copeland employs many of the graduates of local and surrounding schools. Those who have received school shop training on DELTA tools are able to assimilate their work and advance themselves far more rapidly.



Franklin Square Lumber Company, Franklin Square, N. Y. does a volume carpentry and millwork business with their DELTA Scroll Saws, Band Saws, Drill Presses, Lathes, and Jointers. In mills such as this, there are constant opportunities for the students you have trained with power tools. And a tremendous number of millwork shops are equipped with DELTA Power Tools.



Cupples Products Corporation, St. Louis, Missouri, nationally known aluminum window manufacturer, uses DELTA Drill Presses at key points throughout the entire production line. It is understandable that those Cupples' workers who were trained in DELTA equipped school shops become profitable and satisfied employees faster, and with less on-the-job training.

In your community, many industries use Rockwell-built DELTA Power Tools in their regular production operations. They have found that low-cost, precision DELTA tools will handle 90% of the jobs formerly done with costly, immovable machines. The students who have acquired a knowledge of working processes and consequent skills with DELTA Power Tools become readily employable by these companies.

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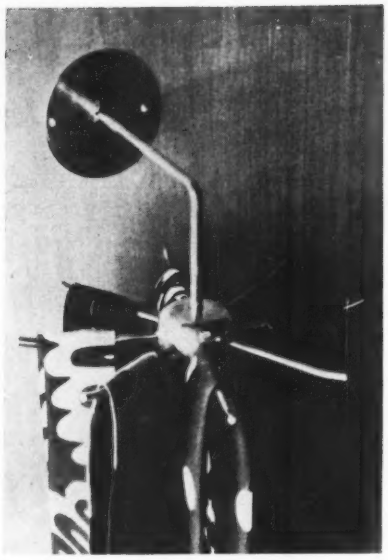


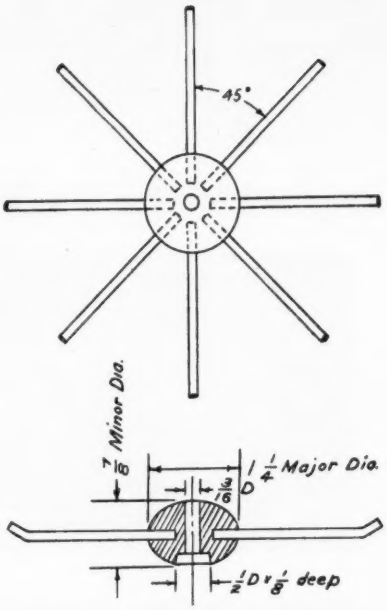
Finished and mounted necktie rack.

Junior-high students like this metal

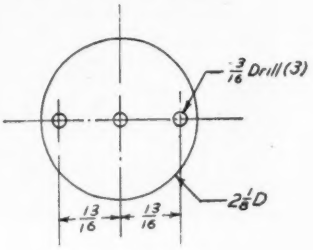
Necktie Rack

By Ira H. Johnston

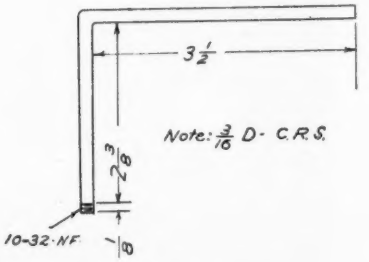
Assistant Professor of Industrial Arts, State Teachers College, Mankato, Minnesota



Note: 8 brass rods 1/8 dia. x 2 1/4 long - Bend to 30° 1/4 from end



Note: 16 ga. iron



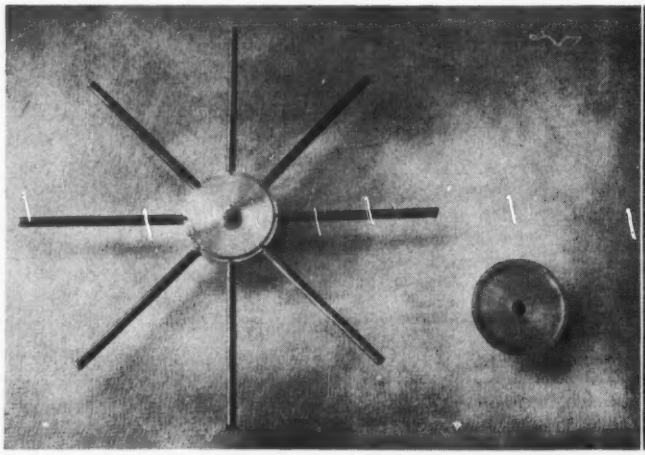
THE junior-high-school boy has reached the age when he starts to acquire a collection of neckties. This makes the construction of a necktie rack a "natural" in junior-high metal classes. A well-designed project such as this enables the student to learn many processes as well as pick up a wealth of related information.

The pattern for the rotating cast part was constructed of aluminum and brass rod in the machine shop. The photographs and drawings show construction details. It should be observed that the "parting-line rule" is violated in regard to the brass spokes. Experimentation has shown that this procedure is satisfactory as no metal will be cast into this area. The cavities will be used only to position properly the brass spokes during the casting operation as shown in the picture below.

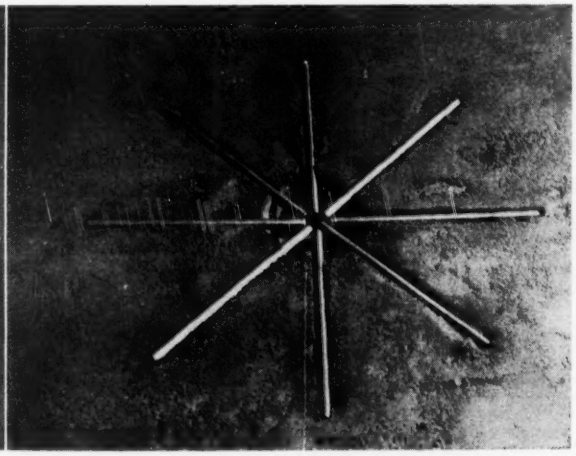
Place the part of the pattern without the spokes flat side down on the molding board; surround it with the drag part of the flask; riddle sufficient molding sand to cover the pattern; and ram the remainder full of molding sand. Turn the filled drag over, add the other part of the pattern and the cope part of the flask, and dust the entire surface with parting compound. Riddle sufficient molding sand to cover the pattern and ram the remainder full of molding sand.

Separate the cope and the drag, carefully remove the pattern parts, and cut the sprue in the center of the cavity in the cope. Cut eight 1/8" brass rods 2 1/2" long, carefully place them in the cavities provided, and replace the cope. Melt sufficient aluminum and pour. After cooling, separate the cope and the drag, cut off the sprue, and file smooth. Drill the 3/16" hole in the center of the casting. A jig can be made that will facilitate this operation by drilling a 1 1/4"

Metal two-part pattern for the necktie rack. Note how rods are threaded into the center part.



Drag part of sand mold for the necktie rack with the metal spokes in place.



hole in a block of wood. Bend each of the eight rods at a 30° angle ¼" from one end.

The round plate used for wall fastening was carefully laid out on a piece of 16-gage sheet iron. After sawing to the approximate shape, it was filed round and the three holes drilled as indicated. A 3/16" rod 6" long was threaded on one end, bent to a right angle 2½" from that end, and the other end brazed at right angles in the center hole of the round plate.

Several methods of finishing are feasible—the rotating part lends itself to polishing and the mounting bracket may be plated or painted.

Assembly involves placing the threaded rod through the 3/16" hole in the cast piece with a 10-32 nut on the underside.

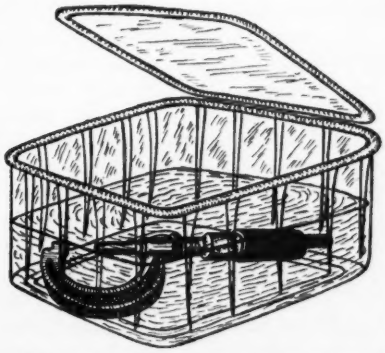
We have found it desirable to Scotch tape two ¾" No. 7, round-head, nickel-plated wood screws to the project so that it may be put up immediately and without difficulty when it is taken home. ★

School Shop KINKS

Payment will be made for each Kink published. Send to Editor, School Shop, Ann Arbor, Mich.

Micrometer Cleaning

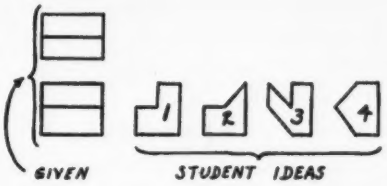
A plastic cheese box with a tight-fitting, snap-on cover makes a useful cleaning box for a micrometer or small drafting instruments.



Place the instrument to be cleaned in the box, pour in enough carbon tetrachloride to cover it, snap on the cover, and let it soak overnight. Then remove the instrument and dry with a soft cloth. The tight-fitting cover will prevent the carbon tetrachloride from evaporating. —*Roger M. Woodbury, Wellesley, Mass., Public Schools.*

A Drafting Problem

In my mechanical drawing classes I have found that I can get more out of my students when I present them with a challenging type of a problem such as the following:



The two views on the left, marked GIVEN, present two views of an object that may take one of many different forms. The problem is for the pupil to sketch end views of as many of these objects as he can think of.

The sketches marked 1, 2, 3, and 4 are samples of end views that the student might draw of forms that will harmonize with the two views on the left.

In addition to being a stimulating assignment, this device may be used as an excellent illustration of the need for three views of an object in certain cases.—*C. A. Andrews, Weaver High School, Hartford, Conn.*

Power Shear Guide

Oftentimes in cutting on the power shears it is difficult to see the scribe mark when the metal is in place. This means that the student has trouble in cutting exactly on the line.

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Here is one answer to that problem: Mount a series of electric light bulbs above the machine in such a manner that a distinct shadow line will be formed exactly at the cutting edge. It will be easy then to "split" a scribed line with this set-up, since the piece on the table will be in bright light, while the piece being cut off will be in dark shadow.—*C. Wayne Close, Glendale, Ore.*

A Project Album

A record of excellent projects may be kept by taking snapshots of them and mounting the prints in an album, properly labeled and identified. Seeing the actual photograph of the article often will inspire a boy with the confidence to make a project that some friend has successfully completed. — *Eugene Thompson, Shaker Heights, Ohio, High School.*

A Stool for Shorty

It is often difficult for the small boy to operate standard height machines. We have found that a stool about 4″ high with an 8″ x 10″ top covered with nonskid material will solve this problem. The stool should, of course, be strongly braced. Rubber-headed nails should be put on the feet to prevent slippage.—*Don Kinnaman, Rocky River, Ohio, High School.*

Source of Tin Plate

Nearby auto-service stations can provide an excellent source of tin plate for the school shop with their five-quart oil containers. Before cutting the top and bottom out of the can, allow it to drain into an oil-storage container. Two or three tablespoons of high-grade machine oil can often be salvaged out of each can in this way.—*Don Kinnaman, Rocky River, Ohio, High School.*

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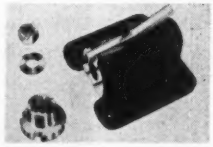

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Abrasive comments from that doughty Scot, Tom Diamond, former head, Department of Vocational Education, University of Michigan, Ann Arbor.

Murder, Inc.

As a rule teachers are patient souls — they have to be to survive — but even they have their moments when they could cheerfully commit mayhem on certain pestiferous members of society whose sole purpose in life appears to be to annoy their fellow man.

These pests are not confined to any age group; no one section of the body politic can claim to have cornered the market on them; and they may be of either gender.

Shop teachers are legitimate prey for these offenders since they have the responsibility for groups of young people, and are guardians of equipment which is useful to others.

One example of the activities of these objectionable people came to our attention recently when we found the woodworking teacher waving his arms frantically, and calling down the wrath of Heaven on certain unknown parties who had used his planer during the hours after school. This in itself would hardly have been sufficient to cause the teacher to display such vigorous emotion. However, when the fact was revealed that the board that had been planed had seen service as part of a form for pouring concrete, one begins to develop some appreciation of the teacher's annoyance.

Another situation, which causes friend teacher to be unhappy, arises when someone, in the darkness of the night, finds it convenient to *borrow* certain tools from the school shop. Incidentally, this teacher is one of those rare specimens who dotes on good housekeeping. He is a firm believer in the philosophy that there is a proper place for everything which is the only place for the article when it is not in actual use. Moreover, at the close of the school day on which the afore-

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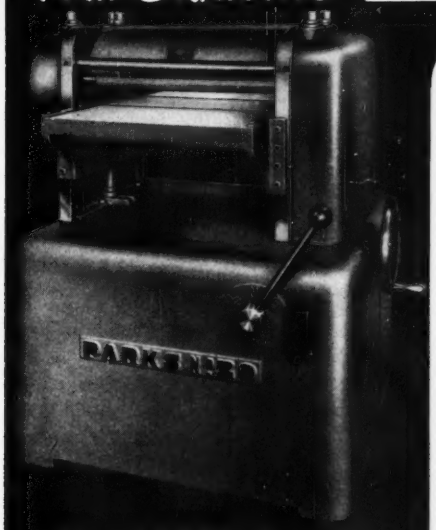

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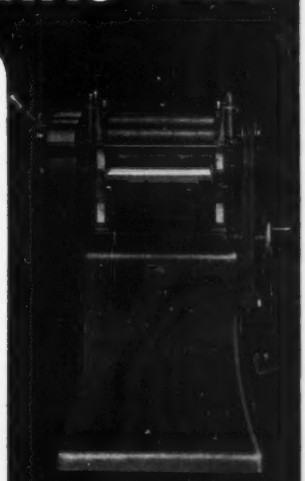

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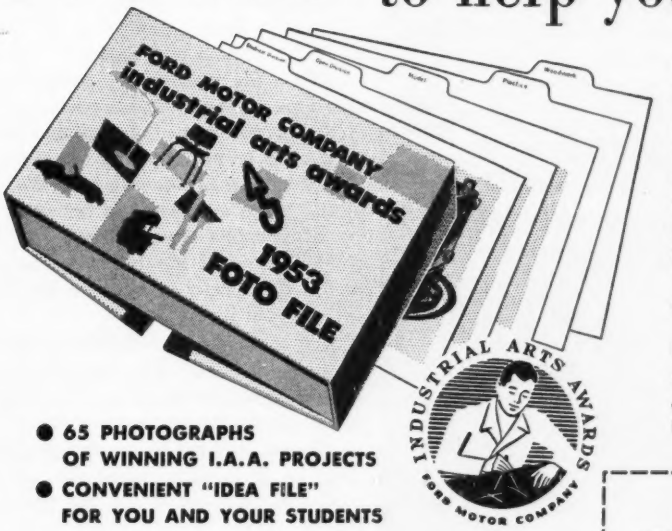

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mentioned raid occurred, he had been assured by his shop superintendent that all was as it should be. Had the culprit asked for the tools, the probability is he would have received them. He might even have been excused had he returned them, but now they are being kicked around somewhere in the vast area of the school building. They have become derelict, and the teacher continues to mutter dire threats in his beard.

Another individual on whom our teacher looks with a jaundiced eye is the school official who regards him as the general service man to the school-at-large. When the electric light or power system refuses to function there is only one person who can fix it. Bleachers are needed for the school gymnasium, the desk in Miss A's room needs attention, football tickets for the homecoming game have to be printed, and a hundred other jobs have to be done in and around the school, every one of them on a high priority list! Who do you think has to do them? Yes, you guessed right, the shop teacher is IT.

The poor fellow is on the spot. His whole future depends on his reaction. If he complains, he is accused of not "getting in line," and the Great I Am, whoever he may be, rates him zero on cooperation. Can you blame the poor teacher if he takes rather a liberal view on the question of murder?

Occasionally, too, teachers have unloaded on them a little stinker who goes on the assumption that his mission in life is to make other people unhappy. He has a fertile imagination which manifests itself by pouring alcohol into the paint, or turpentine into the shellac. He surreptitiously pies the type, or jostles the arm of a boy who is inking a drawing, all the time looking as innocent as an angel. Each day brings forth a new annoying experience for someone in the class.

In an effort to discourage these activities the teacher uses all the disciplinary tricks he has ever heard about, but all the time he has an overpowering desire to strangle the brat.

One should recall, too, that the aforementioned brat has a doting mother, who listens to a running account of the indignities heaped upon her child by a teacher who lacks understanding. The evidences of injustice included in this account cause her to visit the school for the purpose of revealing to the teacher his shortcomings. Naturally, the teacher receives these revelations politely but, in his mind, he is reflecting on how gratifying it would be if the law permitted him to select an appropriate method of execution.

Still another situation arises occasionally in which a member of the school family is apt to become a candidate for extermination. Periodically the teacher proposes to present a lesson to his class for which certain materials are needed. Since it is his practice to plan his work ahead he informs his superior, orally and by formal requisition, that these materials will be needed on a certain date. In order to make doubly sure, he reminds friend supervisor of his order a week before the lesson is due. Does he get the material? He does not. The supervisor has been so busy he has forgotten about it.

We have said that the teacher planned ahead, so it is not surprising that he is able to substitute something else of value to his pupils. As he discusses the alternate lesson with his class, can you guess what he is thinking about the person who was responsible for his predicament?

These, and other individuals who might be mentioned, are responsible for the feeling held by some teachers that, were it not for their reluctance to travel that "Last Mile," they would be happy to take the necessary steps to reduce the number of public pests in circulation. ★

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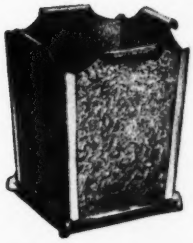

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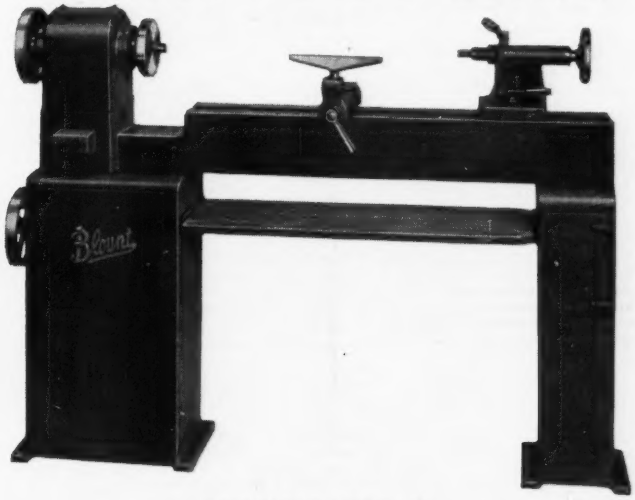

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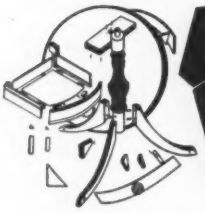

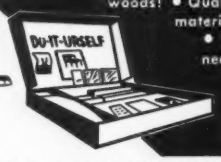

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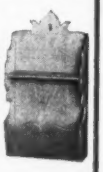

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154M10—Mahogany Coffee Table

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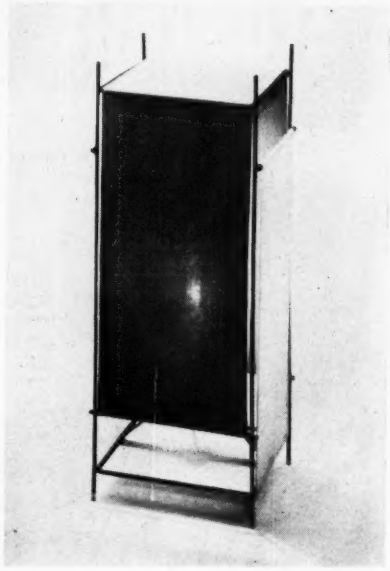
Project Design

What the industrial designers are doing (one of a series)



ACCENT LAMP

Designer: GEORGE NELSON

Manufacturer: HOWARD MILLER CLOCK CO.

AIRILY reminiscent of a Japanese box kite, this simple and appealing accent lamp was chosen by the Good Design Selection Committee for a recent exhibit at the Merchandise Mart in Chicago. This is another example of what modern industrial designers and manufacturers are doing in bringing to the public well-designed house furnishings.

Designed by George Nelson, who has a long record of outstanding work in the field of furniture and accessory items, this one-bulb lamp has a welded wire understructure 8½" square and 22" high. Over this framework, two different-colored lengths of lastex are stretched—one over and one under—and secured in place by means of hooks. The lastex provides a shield for the light source and imparts the all-important element of color to the design itself. The lamp may be used on a table as an upright accent lamp or hung horizontally as an eye-catching wall pin-up. It is manufactured in two versons: black-wire frame with blue and white lastex "covershade" and white-wire frame with red and white lastex "covershade."

This lamp is not meant to be used for reading or for provision of more than decorative lighting and is frankly designed with this in view. ★

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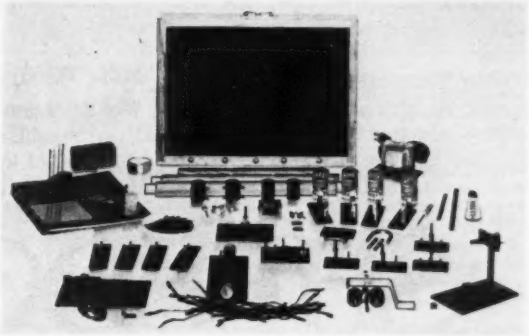

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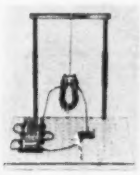
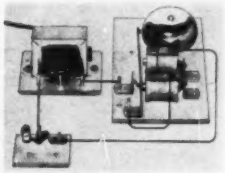
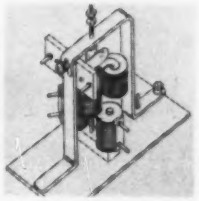


Electro-Magnet Experiment



Bell Assembly and Circuit



Sketch of AC Motor Assembly

Write for Illustrated Bulletin

UNIVERSAL SCIENTIFIC CO., Inc.

Box 336R, Vincennes, Indiana

News

HAPPENINGS IN INDUSTRIAL EDUCATION

Expanded IE Facilities

INDUSTRIAL-education facilities in the Buffalo, N.Y., area have been expanded to meet the increasing need for technically-trained personnel in the Niagara Frontier.

Buffalo Technical High School, now observing its 50th anniversary year, recently moved into a larger building. City authorities also recently approved the expenditure of $1,000,000 to erect an addition to the Seneca Vocational High School building. This addition is expected to include 20 shops, additional classrooms, and a new gymnasium.

The City Council of Buffalo also has appropriated $500,000 for the replacement of obsolete and worn-out equipment in vocational high-school shops and laboratories in the city and for the purchase of additional equipment to meet expanding needs.

New Mexico IA Assn. Elects

WORTH LONG of Washington Junior High School, Albuquerque, N. M., is chairman of the New Mexico Industrial Arts Association for this year. He was elected at the recent annual meeting of the association in Albuquerque.

Albert A. Bettina of Eastern New Mexico University, Portales, is vice-chairman; and William Forkner of Hobbs, N. M., High School is treasurer.

Plans for a state-wide industrial-arts exhibit to be held in Portales, April 14-17, have been made.

Fraternity Honors Two

MU SIGMA PI, industrial-education fraternity, has awarded its honorary life membership for this year to Monsignor Carroll F. Deady, superintendent of Catholic Schools, Archdiocese of Detroit, for his work in the field of industrial education in Detroit.

The fraternity awarded its national membership to John Richard Holmes, director of the Chrysler Institute of Engineering.

Permanent Home at Last

THE New York School of Printing will soon have its own permanent home, culminating a 25-year effort of the New York printing industry. The present school is in rented quarters.

The new school, for which a contract was recently signed with the architects, will be the largest printing school in the world, it is announced. It will contain mechanical equipment valued in excess of $2,000,000, much of which will be supplied by the industry and equipment manufacturers.

Constitution Revised

"BROADENING Our Concepts of Industrial Education" will be the theme of the annual Indiana Industrial Education Association convention, to be held March 25-27 at French Lick Springs Hotel. A revised constitution, modernized to keep pace with new trends in industrial education, will be voted on.

A Wooden Iron Lung

A STUDENT-CONSTRUCTED emergency respirator or "wooden iron lung" was presented to the Pennsylvania State Teachers College, California, Pa., last fall. It was built by four industrial-arts students, James Barefoot of Altoona; William Burdick of Rector; David Emmel of Johnstown; and William Medina of Sharpsburg. Ralph Carney was the teacher in charge of the wood and machine shops where it was built.

The respirator, built of ¾" plywood, completely air-tight, required four weeks of actual construction time. Cost of production, exclusive of labor, is estimated at $400, compared with an estimated cost of $9000 for the regulation iron lung. ★

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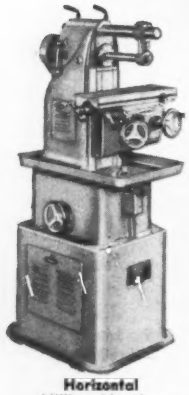
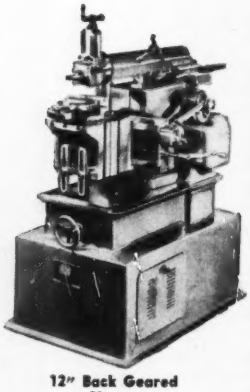


Horizontal Milling Machine

No. TS56B 11¼" Swing Lathe



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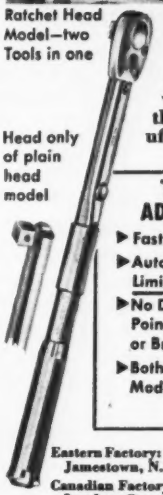

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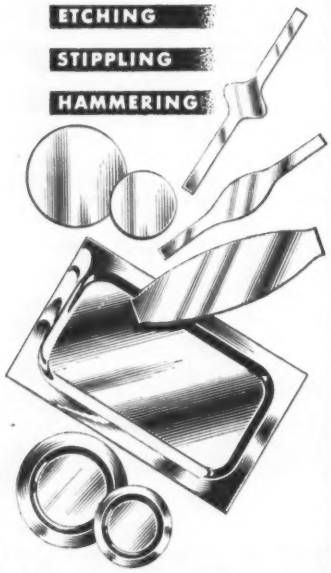

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Realism . . . . . *from page 9*

4. The teacher's emotional make-up.

They Want to Work

Many industrial-arts teachers go through a period in their teaching experience during which they attempt to teach their subject on an academic basis. They may refer to this as *related work* or *shop theory*. This may involve class lectures, formal lesson plans, definite reading assignments in books and magazines, an elaborate system of records and tests, and many other devices. Too often this has been arranged for the primary purpose of keeping the students busy talking and thinking instead of working with tools and materials.

This article does not by any means suggest that the objectives of industrial arts are all realized by the manipulation of tools and materials. Social responsibility, the changing of behavior patterns, mathematics, related science, integration with the core curriculum—all of these are important but only when related directly to the job at hand and never beyond the pupil's span of interest. Eventually the teacher will learn that when the tools are taken away from the boy, the diminishing point of returns in terms of pupil interest is reached very quickly; also that the majority of the boys come into a school shop with the idea that they would like to make something or do some work with their hands.

There is no subject that requires more organization to carry on a successful program than industrial arts, but never should the planning be for the purpose of preventing the pupils from using the tools and equipment with efficiency.

The Dumping Grounds

For years our co-workers have lamented loudly that the school shops are used as the *dumping grounds* for the slow learners and the nonconformists. We who teach in the senior high schools should forget this complaint, for few college-bound youths, or those of superior intelligence, will be enrolled in our classes. In fact, many of the shop classes will include but a small number from the group of fair intelligence, for mandated subjects through state legislation and the ruling of boards of education have sharply limited the pupils' electives. To an extent greater than ever before, the slow-learners and those not able to succeed in an academic type of work must necessarily be absorbed into the industrial-arts program. Shop teachers must recognize this trend and be willing to work with pupils having a limited capacity for learning.

Because of the objective, tangible approach of industrial arts and the unlimited possibility of arousing pupil interest, we can do a great deal for those who have not been endowed with an ability for abstract reasoning. It is quite possible that here, through the manipulation of tools and materials, attitudes may be changed and social adjustments made to a degree that could never be accomplished in formal academic classes. To accommodate these people it may be necessary to change the course of study in some instances, or at least to lower the standards of achievement. This is a regrettable fact, but again we must be realistic. Teachers who are not willing to work with the type of students described should prepare for teaching in another subject field.

Functional Education

Frequently the subject matter taught in our industrial-arts program has been found by the critics to be *not functional*. Here the teacher is in a position comparable to that once experienced by Thomas Edison. Edison is reported to have said that it was the mathematicians who caused him the most trouble, for they frequently said that the methods he used in his experimentation were unscientific and did not reflect good engineering. Realizing that a selfrespecting inventor could not operate without the approval of the scientists, he finally adopted the following plan: Without their assistance he would perfect his idea or device and then submit it to them to substantiate its feasibility and verify its success.

Industrial-arts instructors can follow Edison's plan. Do a good job of teaching; satisfy the *"Three Musts,"* and the nonteaching theorists will eventually analyze your program and find that you have achieved all of the objectives of education!

After climbing the long hill of service, the traveler may finally reach a position from which he can examine critically the surrounding terrain. Perhaps, from this perspective, he may detect through the miasma of conflicting philosophies, nebulous theories, and immeasurable objectives, a common-sense path which he can follow in his role as a *"moulder of youth."*

Should the traveler resist the temptation to tell the novitiate what he has seen? The reader should be warned, however, that to him the terrain may look different than it does to the author through the filter formed by 15 years of trade and industrial experience and through the pragmatic lens developed by teaching industrial arts for 20 years! ★

CONTENTS

Principles of Good Shop Planning
Planning the New School Shop
Pertinent Planning Pointers
Planning for Industrial Education
Improving Shop Layouts for the Industrial-Arts Program
Planning the Vocational School
Safety Factors in Shop Planning
Selected References for School Shop Planning
Plan for Safety in Purchasing
Principles of Purchasing
Requisition Hints
General Shop:
- New General Shop Ideas
- Planning the General Shop
- Modern General Shop Plans
- Equipping the General Shop

Auto Shop:
- New Automotive Shops
- Planning the Auto Shop
- Equipping the Auto Shop

Drafting:
- New Drafting Rooms
- Planning the Drafting Room
- Equipping the Drafting Room

Electricity and Radio:
- New Electrical, Radio, and TV Shops
- Planning the Electricity and Radio Shop
- Equipping the Electricity Shop
- Equipping the Radio Shop

Graphic Arts:
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- Planning the Graphic Arts Shop
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Machine Shop:
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Metalworking Shops:
- New Metalworking Shops
- Planning the Metalworking and Welding Shops
- Equipping the Metalworking Shop
- Space Requirements for Machinery

Woodworking Shops:
- New Woodworking Shops
- Planning the Woodworking Shop
- Equipping the Woodworking Shop
- Space Requirements for Woodworking Machines

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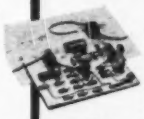

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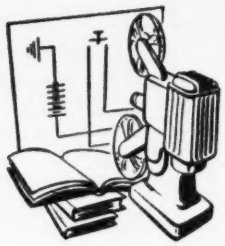

Books:

Electric Arc Welding. Austin. Chicago: American Technical Society, 1953. Pp. 280. $4.00.

This book provides the beginner in arc welding with the information, both technical and practical, that he needs to become proficient in the art of welding. In addition, there is an abundance of information on new-type electrodes and new techniques in welding that should be of interest to the experienced welder.

The welding of common metals and alloys is explained, as well as pipe welding, machinery welding, and structural welding. The symbols in common use in welding are presented, and qualification tests are outlined which should prepare pupils for the task of qualifying as welders in various industries.

The book should serve as an excellent text in both secondary schools and schools of engineering.

John B. Austin is a practicing welding engineer, and is Chairman of the Cleveland Section of the American Welding Society.

Television Tube Location Guide. Indianapolis: Howard W. Sams & Co., 1953. Pp. 191. $2.00. Paper bound.

This is the fourth volume of the guide, and it includes the most recent information on television tubes. It includes data on the fuses employed in the receiver. The location, rating, and circuit protected by the fuses are indicated, thereby enabling the service technician to determine the source of any trouble that may arise. Almost two hundred tube failure check charts are shown, listing the tubes whose failure is likely to produce certain indicated symptoms.

No service technician should be without a copy, and teachers who include a unit on television in their electrical course should consider it a "must" in their shop reference libraries.

Selecting an Occupation. Prosser and Sifferd. Bloomington, Ill.: McKnight & McKnight Publishing Co., 1953. Pp. x+246. $2.50.

In this book no effort has been made to include all of the jobs into which young people may go. An attempt has been made, however, to present significant facts about representative types of work.

This procedure has been followed because of the belief that the problem of a young person is not that of selecting a specific job, but rather is that of finding which of several types of employment are suitable for him.

The desirability of watching the trends in occupational areas is suggested. Various types of occupations are discussed in a general way. The physical, mental, and educational requirements for occupational life are considered. Suggestions are made in regard to obtaining, as well as in holding, a job.

The book will be of special interest to individuals who have the responsibility of guiding youth in its selection of an occupation. However, it will find a place in shop libraries where the teacher is interested in directing the attention of his pupils to the occupational potentialities of the subject he is teaching.

Charles A. Prosser was formerly Director of Dunwoody Institute, in Minneapolis. Calvin S. Sifferd is Supervisor of Counseling at the University of Illinois.

Shopwork Teaching Tricks. O'Brien. Danville, Ill.: The Interstate Printers and Publishers, 1953. Pp. 246. $3.00.

The purpose of this book is to stimulate teachers into devising effective methods of adding color to their daily presentations to their pupils. In order to illustrate the possibilities of achieving this, a number of ideas are presented.

Many shopwork areas are lightly covered, but it is hoped that teachers who examine the book will be able to put into practice many teaching aids that will apply in their specific teaching situations.

Teachers in most fields of shop work will find in the book ideas which apply directly to their work or that can be modified to use in their teaching.

Michael O'Brien is a member of the faculty of the University of California at Davis.

Instructional Units in Machine Shop. Embretson and Seymour. Milwaukee: Bruce Publishing Co., 1953. Pp. 63. 96c. Paper bound.

This book contains 20 different jobs which involve the use of most of the machines found in the school shop. The jobs are relatively simple, and they are arranged in a sequential order which begins with more elementary practice and leads to the more difficult operations.

The book should meet the need for a complete course in beginning machine-shop practice. Safety precautions are suggested for each job, the procedure in each case is outlined, and a series of questions is included which should stimulate the thinking of the pupil on what he is doing and why.

In addition, a number of tests are presented for the purpose of checking on what has been learned in each unit.

Oscar D. Embretson is a drafting teacher, and Henry J. Seymour is a machine-shop instructor in the Vocational and Adult School, Racine, Wisconsin.

CORRECTION: The price of *Modern Woodworking Projects* by Turnbull (Macmillan) is $1.40, not $4.00 as listed in a January issue review.

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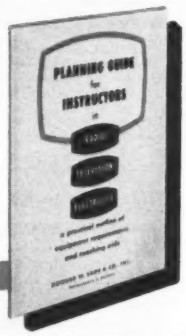

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Ideas for Bookcases and Bookshelves. Menlo Park, Calif.: Lane Publishing Co., 1952. Pp. 80. $1.00. Paper bound.

This book contains a number of illustrations of how bookcases and bookshelves may be arranged to fill different types of spaces. No dimensions are given, as the reader is expected to adapt the ideas appearing in the pictures to the specific space he hopes to fill.

The real value of the book to the pupil lies in the fact that the suggestions made will be helpful to him in designing a project which will meet his personal needs.

Toys You Can Make. Chicago: Popular Mechanics Press, 1953. Pp. 160. $2.00.

This book contains directions for making 140 attractive and easy-to-make toys. Included in the group will be found toys suitable for outdoors and indoors, as well as for children of all ages. Industrial-arts teachers will find the book to be a valuable source of ideas for a wide variety of projects.

The book was prepared by the editors of the Popular Mechanics Press.

Pamphlets:

How to Locate Automobile Troubles is a 30-page manual on troubleshooting without the use of special tools, written by Harold T. Glenn. Five chapters cover stalling, the cranking system, the ignition system, the fuel system, and miscellaneous troubleshooting. Available from the author, who is an automechanics teacher, at 4501 Long Beach Blvd., Long Beach 7, California, for 35¢.

Three-Dimensional Teaching Aids for Trade and Industrial Instruction is a pamphlet containing photographs and descriptions of a great number of teaching aids in most fields of trade and industrial education. Many practical ideas for constructing such aids can be secured from this booklet which was produced by William P. Loomis of the U. S. Office of Education with the aid of a committee of T & I teachers from the North Atlantic Region. Available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., for 45¢.

Audio-Visuals:

Television is a new text-film series of six 16mm sound films covering (1) The Television System, (2) Antenna Installation, (3) Television Receivers, (4) Localizing Troubles, (5) Deflection Circuits, and (6) Practical TV Alignment. They range from 11 to 16 minutes in length and a series of six follow-up filmstrips is provided. The films correlate with the text by Grob entitled *Basic Television*. Available at $340 for the series of films and filmstrips from Text-Film Dept., McGraw-Hill Book Co., 330 W. 42nd St., New York 36, N. Y.

Teaching Aids in Electricity is a 20-minute 16mm sound motion picture illustrating the use of Crow teaching aids. The film contains descriptions of the various teaching aids and shows how they may be used for effective instructional purposes. Available for free showing, but give two alternate dates, from Universal Scientific Co., Inc., 1102 Shelby Ave., Vincennes, Indiana.

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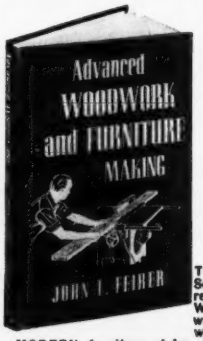

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AIAA to Meet in Los Angeles

THE theme of the annual convention of the American Industrial Arts Association, March 23-27 in Los Angeles, California, is "Improved Action Programs in Industrial Arts." Convention Co-chairmen J. Lyman Goldsmith and Kermit Seefeld, working with the association's executive committee, have planned an outstanding program of professional talent from throughout the nation.

Headquarters will be the luxurious new Statler Hotel.

Special school tours have been arranged for Monday, March 22, while the American Council on Industrial Arts Teacher Education and The American Council of Industrial Arts Supervisors will hold parallel general and group meetings all day Tuesday and on Wednesday morning.

The opening general session is Wednesday afternoon with John R. Ludington, specialist in industrial arts, U. S. Office of Education, as speaker. R. Lee Hornbake of the University of Maryland will also address the session. Discussion groups on curriculum, instructional materials, in-service education, and local associations will decide on courses of action for their areas.

Following a breakfast on Thursday honoring Ford Industrial Arts Awards winners, the various groups will continue their discussions for the balance of the day with an evening session on educational housing problems.

Concurrent programs, one on elementary-school industrial arts and another for student teachers, will be held Friday morning. An industrial-arts fair is scheduled for the afternoon with master teachers from the area putting on demonstrations. The banquet and Ship's program is Friday evening.

Saturday is "Santa Barbara Day" with tours, entertainment, and luncheon at Santa Barbara College, 100 miles north of Los Angeles. ★

ARNE RANDALL, former specialist in art education, U. S. Office of Education, Washington, D. C., has been appointed professor of industrial arts at Texas Technological College, Lubbock.

JOHN A. MCCARTHY has resigned his position as assistant commissioner of education, Vocational Division, N. J. State Department of Education, to become chief of the Pennsylvania State University staff on Formosa. Mr. McCarthy will be located at Taiwan Teachers College where he will aid in the development of the industrial-arts and vocational-industrial education curriculums.

G. W. HAVERTY is the new president of the North Dakota State School of Science, Wahpeton, N. D., succeeding E. F. RILEY. Mr. Haverty previously served as assistant state supervisor of T & I education.

RAYMOND E. B. FAGAN has accepted a position as supervisor in industrial arts, Teachers College, University of Hawaii, Honolulu.

WILLIAM A. SELLON, formerly of Bradley University, Peoria, Ill., is now associate professor of industrial arts at Ohio University, Athens.

LOUIS Q. MOSS has returned to Los Angeles, Calif., from Brazil where he collaborated with members of the National Industrial Training Services in the organization of the Institute for Directors of Industrial Training in Latin America. ★

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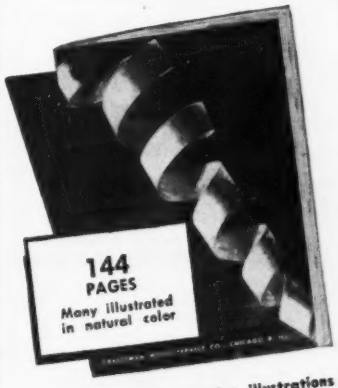

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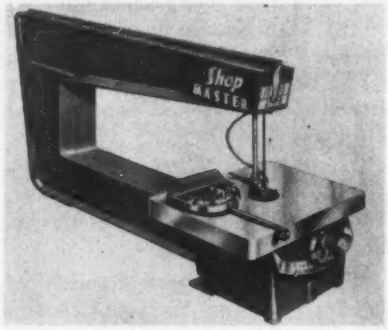
News from INDUSTRY

(Circle the numbers on the card in this issue to secure the items listed below.)

New 20" Jig Saw with Selfcontained Motor

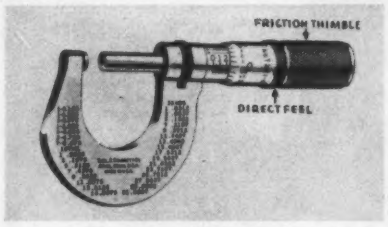


A new 20" jig saw with selfcontained motor has been developed by Shopmaster, Inc. The saw contains no conventional solenoid or vibrator power unit. Instead, it is powered by a built-in, full-rotating armature a-c motor that plugs into any 110-v a-c outlet. The manufacturer states that a combination miter gage and rip fence (available as an accessory) together with the saw's extra-large yoke enable this tool to perform many of the tasks usually performed by a circle saw.

This jig saw cuts up to 2" stock, cross-cuts, rips, cuts compound angles, and cuts to center of 40" board. The 10"x12" table tilts a full 45°. One of the saw's features is a new control that enables all calibrations to be easily read from standing position when the table-tilt is being set.

For more information, write Shopmaster, Inc., 1214 South Third Street, Minneapolis, Minnesota, mentioning SCHOOL SHOP; *or circle no. M1 on the business-reply card.*

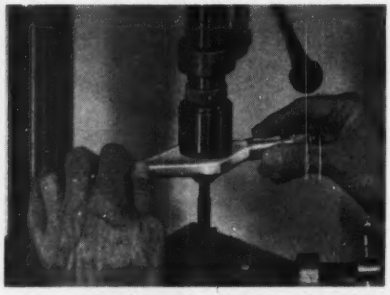
New Starrett Micrometer Caliper



A new micrometer caliper introduced by the L. S. Starrett Company has both "friction control" and "direct feel" in a single micrometer designed for easy, one-hand use. An improved friction-control mechanism is built right into the upper portion of the thimble comfortably within the span of thumb and fingers where it is easy to reach and easy to use for fast, accurate, repetitive measuring.

The manufacturer states that with the friction-thimble feature (controlled by the outer portion of the thimble) the spindle will not advance after the correct contact pressure is applied, insuring uniformly accurate readings on all measurements. The lower or "direct-feel" section of the thimble is integral with the spindle with convenient location and large diameter for quick control and sensitive feel on critical measurements. For Starrett Catalog 26-A, illustrating the complete line of Starrett Tools, write the L. S. Starrett Company, Athol, Mass., mentioning SCHOOL SHOP; *or circle no. M2 on the business-reply card.*

Gilbert Hand-Tapping Device



A new hand-tapping device used with a drill-press chuck, called the Tappo Chuck Wrench, is being produced by the Gilbert Mfg. Co. The wrench is of sleek design, requiring little room in tool box or apron pocket. The manufacturer states that no special skill is required to obtain accurate results with the tool, and that tap breakage is minimized, since lateral tap-strain is eliminated.

The wrench is said to function equally well when used for reaming, and also when used as an attachment on milling-machine chucks.

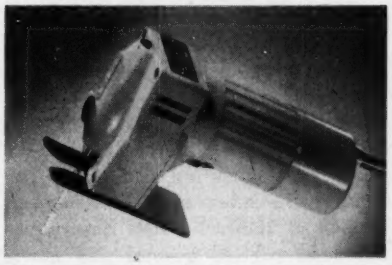
The tap capacity is 1/16-64 NS to and including 9/16-12 NC. Reamer capacity is ⅛" d to and including ½" d. The Tappo Chuck Wrench fits conventional 6A, cap. O-½" key-style chucks which measure 1 7-16" o.d. at keyhole body portion. For more information, write Gilbert Mfg. Co., 139 Riverview Ave., Elkhart, Indiana, mentioning SCHOOL SHOP; *or circle no. M3 on the business-reply card.*

Single Hex Combination Wrenches

Snap-on Tools Corporation announces a new series of four combination open-end "Boxocket" wrenches with single hexagon openings on the Boxocket end. These single hex openings provide extra gripping power for slightly undersized or chewed-up nuts and on Parker-Kalon selftapping screws with rounded corners. The greater contact area provided by the six-sided shape helps prevent damaging brass or other soft metal fasteners and fittings.

The wrenches are made in 5/16", ⅜", 7/16", and ½" sizes, with both the open-end and Boxocket openings the same size on each wrench. Overall lengths are comparatively short—5" to 5¾"—for close quarter work in restricted areas. Wrenches are finished in polished chrome. For further information, write to Snap-on Tools Corporation, Kenosha, Wisconsin, mentioning SCHOOL SHOP; *or circle no. M4 on the business-reply card.*

New Portable Electric Saw



A new portable electric 7-in-1 saber-type saw which can be used as a band, jig, keyhole, scroll, rip, crosscut, or coping saw is being marketed by the American Floor Surfacing Machine Company. This saw, called the Lesto hand saw, is manufactured in Switzerland and sold and serviced in America.

The distributor points out that the Lesto hand saw is safe and easy to use, and well-suited to school shop use—as well as to the use of both professional and hobbyist who want a single dependable saw to cut wood, metal, plastics, tile, etc. Its all-purpose applications include cabinet work, woodworking, display work, plumbing, and sheetmetal jobs.

The Lesto saw is available in two models, each with 25-60 cycle motor, ac-dc 110-v. Model 2 will cut up to ¾"; Model 11 has a maximum sawing thickness of 2". For more information, write The American Floor Surfacing Machine Company, 518 South St. Clair St., Toledo 3, Ohio, mentioning SCHOOL SHOP; *or circle no. M5 on the business-reply card.*

New-Type Drawing Table

A drawing table which features adaptability to individual storage requirements has recently been announced by Parent Metal Products. The basic table consists of an all-steel base, 39" high, with a 36" x 28" drawing board, reinforced with 1⅜" maple end battens. The board may be raised to a 30° angle. The basic unit is equipped with one storage drawer with lock, 6¼" wide, 13¼" deep, 3½" high.

In order to attain maximum storage facilities, additional storage units can be added to the basic table—a drawer cabinet with six

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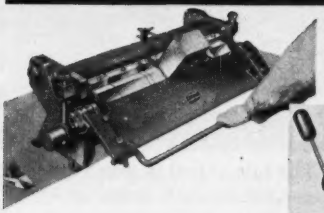

Bench Model BB 2 with all the features of the larger machines; Capacity 24", 18 Gauge

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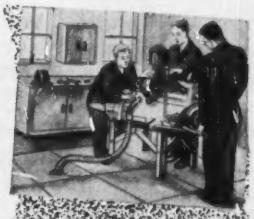

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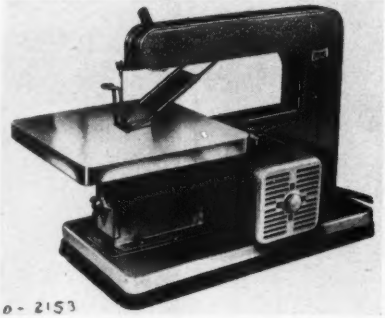
drawers, and a drawing-board storage cabinet, with space for six boards 18" x 24". For information and complete catalog, write Parent Metal Products, Inc., Industrial Education Dept., Locust & Fourth Sts., Philadelphia 6, Penna., mentioning SCHOOL SHOP; *or circle no. M6 on the business-reply card.*

Dremel Introduces New Jig Saw



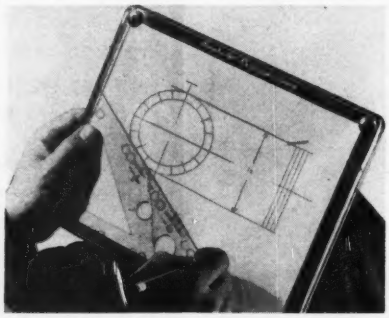
D-2153

A new jig saw, called the Model 8 Moto-Jig Saw, has just been introduced by the Dremel Manufacturing Co. The new saw features "rocker action"—a principle designed to end excessive blade breakage by eliminating blade "buckle" and "whip" caused by the tension spring on conventional jig saws. This action is said to make the saw cut faster too, since positive power is applied to both the up and down strokes. The makers say it will saw through 1½" wood and ¾" plywood as fast as you can follow a line.

Other features include a combination blade-guard and hold-down which protects the operator's fingers from injury and holds the work on the table. The saw is equipped with a four-way blade holder which permits cutting in any direction. The machined table tilts to 45°, and also raises and lowers. This feature is said to save blade costs, for when the blade becomes worn in one spot, the table can be raised or lowered to a new cutting area.

For more information, write Dremel Mfg. Co., 2420 18th St., Racine, Wisconsin, mentioning SCHOOL SHOP; *or circle no. M7 on the business-reply card.*

Portable Plastic Drawing Board



A portable drawing board made of clear plastic is being marketed by the Graphostat Company. The board weighs less than 8 ounces and can be slipped into a briefcase.

Four corner clamps for attaching 8½" x 11" paper assure smooth, sure handling of the working sheet without the use of thumbtacks or scotch tape. The clamps are recessed into the plastic so that a triangle or ruler can ride freely over them without interference. Two metal straight edges, one horizontal, one vertical, are retractable, thus making it possible to do precision work without the use of a T-

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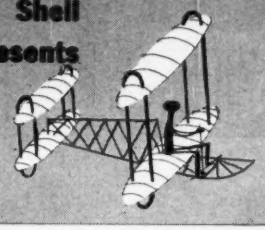

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square. Tension clamps on the under side of the board provide for secure storage of triangles. The board measures 9¾" x 12¼".

For more information, write The Graphostat Company, 110 Eaton Place, East Orange, New Jersey, mentioning SCHOOL SHOP; *or circle no. M8 on the business-reply card.*

New Manual Electrode Holder Announced

A 400-ampere manual electrode holder that features new design has been announced by Tweco Products Company. It weighs 27 ounces, and is designed to handle electrodes through 5/16". It will hold rods as small as 3/32" diameter.

The holder features air vents between the holder castings and the insulation, which help dispel the heat from the arc. A large diameter handle that has only point contact with the holder casting permits a free flow of cooling air. The new wedge-shaped upper jaw provides maximum pressure with minimum contact area. This new model, like all other Twecotongs, has laminated glass cloth insulation that resists extreme heat and impact. For more information, write Tweco Products Company, P.O. Box 666, Wichita, Kansas, mentioning SCHOOL SHOP; *or circle no. M9 on the business-reply card.*

New Literature:

Chicago Dial Precision Instruments Catalog is a brochure which gives the first complete presentation of the many precision instruments for checking manufactured by the Chicago Dial Indicator Co. Listed in this fully illustrated 16-page general catalog, among the many precision instruments widely used by machinists, tool makers, and inspectors, are Geneva dial indicators, dial indicator test sets, bench center set, test sets with magnetic base, regular test sets, bench gage, dial snap gages, and depth gages.

For General Catalog 106, write Geneva Dial Indicator Co., 180 N. Wacker Drive, Dept. AG, Chicago, Ill., mentioning SCHOOL SHOP; *or circle no. M10 on the business-reply card.*

Radio Amateur Question and Answer License Guide is the title of a new 32-page booklet prepared and distributed by the American Electronics Co. This booklet will be valuable for anyone preparing for the FCC Amateur License examinations. The booklet is made up of questions of the multiple-choice type, similar to those used on the FCC exams, grouped together according to their subject matter under the headings "Novice Practice Questions," "General and Technician Practice Questions," and "Typical General and Technician Examination." The price of the booklet is 50c. Write to American Electronics Co., 1203 Bryant Ave., New York 59, N.Y., mentioning SCHOOL SHOP; *or circle no. M11 on the business-reply card, enclosing money with order.*

Clay Play and **Time to Kiln** are two pamphlets available from the Pemco Corporation which present material of interest to beginners in the field of ceramics. They answer questions on simple clay work, pottery, and ceramic sculpture, including information on glazing and kiln firing. These pamphlets may be obtained free by writing Pemco Corp., Pottery Arts Division, Baltimore 24, Md., mentioning SCHOOL SHOP; *or circle no. M12 on the business-reply card.*

Industrial Arts Catalog. A 26-page catalog of woods available for industrial-arts work is being distributed by the Frank Paxton Lumber Company. The catalog includes listings and prices for hardwoods, softwoods and pines, plywoods, specialties, foreign woods, Paxbond glues, veneers, furniture squares, dowel rods, and training aids. For a free copy, write to Frank Paxton Lumber Company, First and Kansas Aves., Kansas City 3, Kansas, mentioning SCHOOL SHOP; *or circle no. M13 on the business-reply card.*

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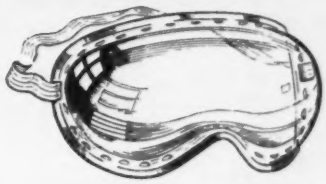

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Washington . . . *from page 40*

2. The White House conference. It is Mr. Eisenhower's idea also to crown the series of state conferences with a national meeting on education. The facts which presumably will be gathered, the problems which will be spotted state by state, will be "synthesized" (that's the word the experts are using) to see how they bear on the national issues. And these national issues are then to be examined, top to bottom, in Washington. Vocational education will probably be included in the agenda of the White House Conference, provided those interested in its future push it as a problem worth examinig.

Before the state or White House conferences can take place, however, Congress has to give these events its blessing. To get this blessing, plus $1,500,000 needed for expenses (each state is to get no less than $10,000), Senator H. Alexander Smith (R., N. J.) introduced S. 2723, a bill "to enable the President to hold a conference of educators and interested laymen from all parts of the nation to consider and report to the President on significant and pressing problems in the field of education."

3. The Office of Education is also excited about the President's proposal to create a National Advisory Committee on Education. To bring this plan into being Sen. Smith introduced a second bill, S. 2724, now under study in Congress.

The Advisory Committee is to give the Secretary of Health, Education, and Welfare "the advice of a group of lay persons on the initiation and conduct of studies" dealing with education. This means, according to Senator Smith, that the Advisory Committee will each year try to pick out the really big questions which need study and action and will then urge either Congress, the Department of Health, Education, and Welfare, or private groups to do something about them.

The hope is that the Advisory Committee will do no fronting for the Administration, no endorsing of already decided platforms. Rather, it is to point its collective finger at gaps in educational services and facilities and say to the people and to Congress: "This needs to be done, this needs improvement, this needs correction."

Whether the Advisory Committee will be sensitive to the needs of vocational education will depend on the type of men and women who will serve on it. Will they be predominantly academically-minded? Dollars-and-cents minded? Will they have broad sympathies for all youth and be aware that training in the practical arts is what a large segment of American young people need?

"We shall be disappointed," said one Washington official, "if at least one of the nine members of the Advisory Committee is not a person with special concern for vocational education."

Introducing Walter Cooper.—During the past several months we have been talking with the federal program specialists having direct contact with state officials. We have reported conversations with William Penn Loomis, Ed Ludke, and Jim Kelly because of a conviction that more should be known about these devoted public servants.

This month we report the last of these conversations—with Walter H. Cooper, trade and industrial specialist for the Central Region.

The first sentence in our notes on the conversation is a characteristic Cooper remark:

"You can go out to lunch in these days of fast change and come back to find you're obsolete."

In his more than 30 years of service in vocational education, Mr. Cooper has seen many technological changes affecting trade training.

"Take the auto mechanic by way of illustration," he says. "Not too long ago an auto mechanic was a parts-changer. He didn't need to know too much about the operation of a car's motor. How would the mechanic of yesterday fare with today's autos? Not too well, I fear," he replied to his own question.

"Today's auto mechanic has to know how to check a car with those complicated instruments you see in every auto repair shop. He has to read and interpret and diagnose the instruments' findings before he can even start to work on the car. In a manner of speaking, the auto mechanic today uses his wrench less and his head more.

"Or, take the upholsterer. This craftsman today uses synthetic materials never dreamed of in years back. And who can say what materials will be developed for use in tomorrow's furniture?"

To Walt Cooper, technological developments pose a double challenge: one for the apprentice (who must gear his program of training to change) and another challenge for his instructor.

The instructor who does not keep up with technological advancement may "find that soon he has fallen by the wayside—maybe even become obsolete."

Mr. Cooper draws on a personal experience to illustrate his point.

As a young electrician he gained his

first teaching experience in the Army Signal Corps during World War I. Radio was his specialty. After the war, in 1920, he returned to his native Denver as a teacher of electrical apprentices at the Denver Opportunity School and within three years he was head of the electrical department of the school. In 1930, he moved to the post of Colorado state supervisor for trade and industrial education. "And here's where I started to become obsolete," he said with a smile.

"I became so involved in administration that I soon lost touch with what was happening in my specialty." But administration became Mr. Cooper's life work and he moved rapidly upward through a succession of jobs: as Colorado state director of vocational education; as federal regional agent for the Pacific coast; as chief of the trade and industrial education branch of the Office of Education; and in 1952 as program specialist covering the states of Ohio, Kentucky, Indiana, Michigan, Illinois, Wisconsin, Minnesota, North and South Dakota, Iowa, Missouri, Kansas, and Nebraska.

It appears that Walt Cooper has carried his administrative duties and burdens with a quiet heart and cheerful air. He has taken changes as they came. "And if I have learned anything in my experience it is this," he concluded, "the training of a skilled worker is as much a continuing, ongoing process as the training of a competent, up-to-date teacher." ★

Convention Calendar

California Industrial Education Association, Fresno, March 12-13.

New Jersey Vocational Arts Association, Asbury Park, March 18-20.

American Industrial Arts Association, Hotel Statler, Los Angeles, Calif., March 23-27.

Indiana Industrial Education Association, French Lick Springs, March 25-27.

Ohio Industrial Arts Association, Neil House, Columbus, March 25-27.

Texas Vocational Association, Plaza Hotel, San Antonio, April 1-3.

Illinois Vocational Association, Springfield, April 8-10.

Michigan Industrial Education Society, Civic Auditorium, Grand Rapids, April 8-10.

New York State Vocational and Practical Arts Association, Hotel Statler, Buffalo, April 8-10.

Missouri Industrial Education Association Spring Conference, University of Missouri, Columbia, April 16-17.

Connecticut Industrial Arts Association, Teachers College of Connecticut, New Britain, April 23-24.

Pennsylvania Industrial Arts Conference, State Teachers College, California, April 23-24.

Georgia Vocational Association, Biltmore Hotel, Atlanta, June 10-11.

Colorado Vocational Association, Colorado A & M College, Fort Collins, June 21-25.

Conference on Cooperative Education, Ohio State University, Columbus, Ohio, June 28-29.

International Graphic Arts Education Association Conference, University of Colorado, Boulder, July 4-8.

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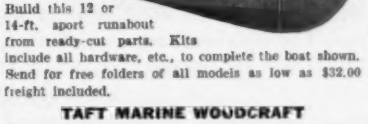

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Still Not Filled.—Such is the latest report on the status of the two top posts in the federal vocational education division. We asked U. S. Commissioner of Education Brownell about this state of affairs. He replied that a head for the division, that is, the post last held by Joseph Strobel, will be filled within a "matter of weeks." And soon after will come an appointment for the top position in the Trade and Industrial Education branch last held by Lawrence Borosage. Commissioner Brownell was apologetic for the delay and explained: "There were just too many other things to do."

And these other things included the 1955 budget and what is known as the "new program" for the Office of Education.

VE Gets Slashed.—Let's look at the budget first. As sent by the President to Congress, the budget for 1955 does right well for the Office of Education as a whole. It asks for an increase of 7 percent for salaries and expenses. If granted by Congress, the increase would be used for improving statistical services and the quality of publications—and vocational educators would welcome both.

But a closer look at the figures shows some disturbing signs. The only division to suffer a cut in its salaries and expenses, if Congress agrees with the President, is vocational education. Even more unkind is the cut proposed in the George-Barden funds to be distributed to the states. Last year the sum available was $18,700,000. In 1954-55 this sum is to be cut by $1,173,700. Here is a proposed loss of 6.4 percent. It is to be spread, according to the federal budget, as follows: vocational agriculture is to lose (in round figures) $455,000; home economics, $360,000; and trade and industrial education, $358,000. But all this depends on what Congress does about the recommendations.

More Cuts Later.—What do the recommendations mean? Are they simply temporary shavings off the budget to appease those who have been demanding economy? Will the cuts be restored next year?

Quite the contrary is true. The cuts will be sharper next year and still sharper the year after that. This is on the authority of the President himself. In his Budget Message to Congress the President said: "This budget marks the beginning of a movement to shift to state and local governments and to private enterprise federal activities which can be more appropriately and more efficiently carried on that way. Certain agricultural activities and some aspects of our health, education, and welfare programs are examples of this type of action." And at a press conference the President repeated that while the cuts in the 1955 budget were slight, the important thing is the direction in which the budget was going. It is going in the direction, Mr. Eisenhower pointed, of gradually eliminating as many federal expenditures as possible.

The 1954 "New Look."—Now let's look at what the Office of Education calls its "new program." Three items occupy the concern of Commissioner Brownell and his staff.

1. State conferences on education. It has by now been well publicized that Pres. Eisenhower would like each state to hold a conference to examine its pressing problems in education. His original idea was to study only the causes and cures for shortages of teachers and of classrooms. But schoolmen quickly began talking about "a wide open agenda." This means that vocational education, too, can have a place among the items the people of each state are to study during 1954.

(*Continued on page* 38)

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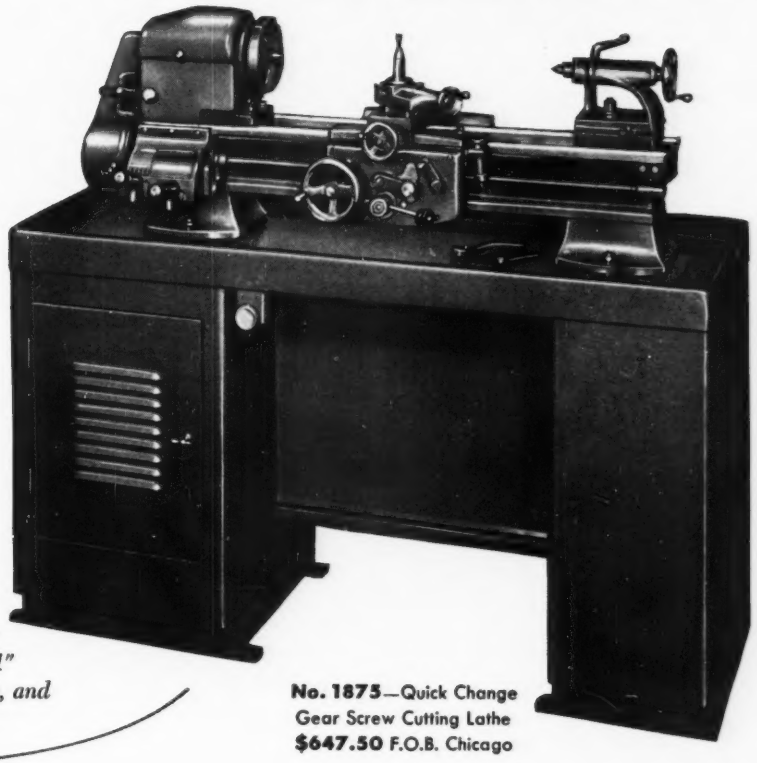

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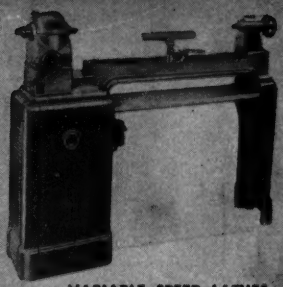

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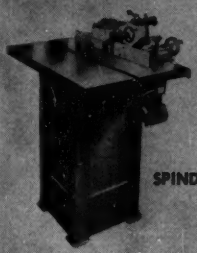

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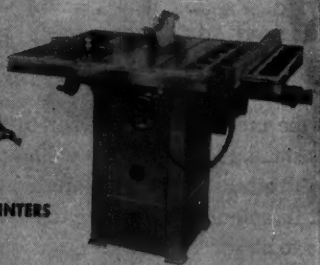

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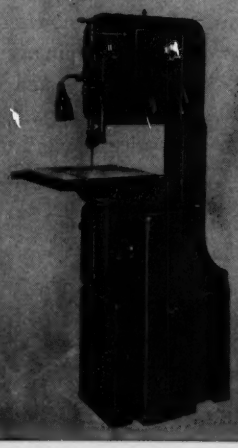

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